

Docket No. : IMRAA.015C1/IM-72C
Application No. : 09/785,944
Filing Date : February 16, 2001

Customer No.: 20,995

Appeal No. 2010-005849

SUPPLEMENTAL REPLY BRIEF

Applicant : Martin E. Fermann
Appl. No : 09/785,944
Appeal : 2010-005849
No.
Filed : February 16, 2001
For : MODE-LOCKED MULTI-MODE
FIBER LASER PULSE SOURCE
Examiner : Hrayr A. Sayadian
Art Unit : 2815
Conf. No. : 7227

CERTIFICATE OF EFS WEB TRANSMISSION

I hereby certify that this correspondence, and any other attachment noted on the automated Acknowledgement Receipt, is being transmitted from within the Pacific Time zone to the Commissioner for Patents via the EFS Web server on:

December 21, 2011

(Date)

/Steven P. Ruden/

Steven P. Ruden, Ph.D., Reg. No. 53,538

Mail Stop Appeal Brief-Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

This Supplemental Reply Brief for the above-identified appeal is submitted to set forth updates to the following sections of the Reply Brief filed November 20, 2009:

Section II, Related Appeals and Interferences, and

Section X, Related Proceedings Appendix.

The following sections remain as set forth in the Reply Brief or the Amended Appeal Brief filed September 23, 2008 and are not reproduced herein:

Section I, Real Party in Interest; Section III, Status of Claims; Section IV, Status of Amendments; Section V, Summary of Claimed Subject Matter; Section VI, Grounds of Rejection to be Reviewed on Appeal; Section VII, Argument; Section VIII, Claims Appendix; and Section IX, Evidence Appendix.

Docket No. : IMRAA.015C1/IM-72C
Application No. : 09/785,944
Filing Date : February 16, 2001

Customer No.: 20,995
Appeal No. 2010-005849

TABLE OF CONTENTS

Related Appeals and Interferences	3
Related Proceedings Appendix	8

Docket No. : IMRAA.015C1/IM-72C
Application No. : 09/785,944
Filing Date : February 16, 2001

Customer No.: 20,995

Appeal No. 2010-005849

RELATED APPEALS AND INTERFERENCES

(1) IMRA America, Inc. (“IMRA”) owns U.S. Patent No. 5,818,630 (the ‘630 Patent), which has the same inventors as the present application and is incorporated by reference therein. IMRA is currently involved in litigation with IPG Photonics Corporation (“IPG”) relating to the ‘630 Patent. The litigation, *IMRA America, Inc. v. IPG Photonics Corporation*, was filed in federal court in the Eastern District of Michigan on November 16, 2006 (Case No. 2:06-cv-15139). Among its affirmative defenses, IPG alleged that: IPG does not infringe the claims of the ‘630 patent; the claims of the ‘630 patent are invalid because they fail to satisfy the conditions of patentability specified in one or more of 35 U.S.C. §§ 102, 103, 112, and 116; the ‘630 patent is unenforceable against IPG pursuant to the doctrine of inequitable conduct; and the ‘630 patent is unenforceable against IPG pursuant to the doctrine of patent misuse.

On December 21, 2007, IPG requested ex parte reexamination of the ‘630 Patent. This initial request for reexamination and a subsequent corrected request dated January 22, 2008 were not granted for failure to comply with reexamination request filing requirements. IPG filed a replacement request for ex parte reexamination on March 12, 2008, which was granted by the Patent Office on June 3, 2008 as Application No. 90/008,971, filed March 12, 2008.

On April 3, 2008, the litigation was stayed pending completion of the reexamination of the ‘630 Patent. The reexamination was completed, and an ex parte reexamination certificate was issued on October 27, 2009 that confirmed the patentability of all the claims in the original patent (as well as additional claims added during the reexamination). On October 13, 2009, the litigation stay was lifted and the litigation was reopened.

On August 19, 2009, IPG requested another ex parte reexamination of the ‘630 Patent. This reexamination was assigned Application No. 90/010,650. IPG’s request for ex parte reexamination was denied November 13, 2009. IPG’s petition to reconsider the order denying the request for reexamination was denied on July 30, 2010. The Patent Office’s Decision Denying Petition to Reconsider Order Denying Request for Ex Parte Reexamination is attached hereto as Exhibit A of the Related Proceedings Appendix.

Docket No. : IMRAA.015C1/IM-72C
Application No. : 09/785,944
Filing Date : February 16, 2001

Customer No.: 20,995

Appeal No. 2010-005849

On December 27, 2010, after a *Markman* hearing held on June 2, 2010, the District Court issued an opinion and order adopting IMRA's proposed construction of the term "mode converter." The opinion and order is attached hereto as Exhibit B of the Related Proceedings Appendix.

Four summary judgment motions were filed by the parties, and a hearing for all four summary judgment motions was held on March 3, 2011. On March 14, 2011, the District Court ruled on these four summary judgment motions. The District Court granted IMRA's Motion for Summary Judgment of No Invalidity for Derivation, denied in part and granted in part IPG's Motion for Summary Judgment Regarding Damages Issues, granted IMRA's Motion for Summary Judgment of No Inequitable Conduct, and denied IPG's Motion for Summary Judgment of No Infringement, Invalidity and No Willful Infringement. The District Court's order is attached hereto as Exhibit C of the Related Proceedings Appendix.

A jury trial began on September 26, 2011 before District Judge Arthur J. Tarnow. IMRA and IPG stipulated that the following claims and counter claims were dismissed from the case: IPG's request for declaratory relief regarding invalidity under 35 U.S.C. §§ 102, 103 and 116; IPG's request for declaratory relief that the '630 patent is unenforceable pursuant to the doctrines of patent misuse and laches; and IMRA's claim that IPG has induced infringement of the '630 patent. The District Court's Stipulated Order for Dismissal is attached hereto as Exhibit D of the Related Proceedings Appendix.

On October 6, 2011, the jury reached a verdict of no infringement of the '630 patent by IPG, and the case was dismissed. The Amended Final Judgment by District Judge Tarnow dated November 21, 2011 is attached hereto as Exhibit E of the Related Proceedings Appendix.

Docket No. : IMRAA.015C1/IM-72C

Customer No.: 20,995

Application No. : 09/785,944

Appeal No. 2010-005849

Filing Date : February 16, 2001

(2) The present application is part of the following family of U.S. applications, all owned by IMRA:

No.	Serial Number	Title	Filed	Relationship/ Status
1.	09/199,728	MODE-LOCKED MULTI-MODE FIBER LASER PULSE SOURCE	11/25/1998	Parent Application; Issued as U.S. Pat. No. 6,275,512
2.	09/785,944	MODE-LOCKED MULTI-MODE FIBER LASER PULSE SOURCE	02/16/2001	Continuation of the '728 Application; The present application
3.	10/424,220	MULTI-MODE FIBER AMPLIFIER	04/25/2003	Continuation of the '728 application and the '944 application; Pending
4.	10/850,509	MODE-LOCKED MULTI-MODE FIBER LASER PULSE SOURCE	05/20/2004	Continuation of the '728 application, the present application, and the '220 application; Abandoned

(3) IMRA also owns the following U.S. applications that contain subject matter relating to multi-mode fibers and systems.

No.	Serial Number	Title	Filed	Relationship/ Status
1.	08/822,967	QUASI-PHASE-MATCHED PARAMETRIC CHIRPED PULSE AMPLIFICATION SYSTEMS	03/21/1997	Issued as U.S. Pat. No. 6,181,463
2.	09/116,241	QUASI-PHASE-MATCHED PARAMETRIC CHIRPED PULSE AMPLIFICATION SYSTEMS	07/16/1998	CIP of (1); Issued as U.S. Pat. No. 6,208,458
3.	09/317,221	MICROCHIP YB FIBER HYBRID OPTICAL AMPLIFIER FOR MICRO-MACHINING AND MARKING	05/24/1999	CIP of (2); Abandoned

Docket No. : IMRAA.015C1/IM-72C

Customer No.: 20,995

Application No. : 09/785,944

Appeal No. 2010-005849

Filing Date : February 16, 2001

No.	Serial Number	Title	Filed	Relationship/ Status
4.	10/645,662	MICROCHIP YB FIBER HYBRID OPTICAL AMPLIFIER FOR MICRO-MACHINING AND MARKING	08/22/2003	Continuation of (3); Abandoned
5.	10/927,374	HIGH ENERGY OPTICAL FIBER AMPLIFIER FOR PICOSECOND-NANOSECOND PULSES FOR ADVANCED MATERIAL PROCESSING APPLICATIONS	08/27/2004	Continuation of (4); Abandoned
6.	10/958,593	OPTICAL AMPLIFIER SYSTEM FOR MICROMACHINING AND MARKING	10/06/2004	Continuation of (4); Abandoned
7.	11/141,704	MICROCHIP-YB FIBER HYBRID OPTICAL AMPLIFIER FOR MICRO-MACHINING AND MARKING	06/01/2005	Continuation of (4); Issued as U.S. Pat. No. 7,576,909
8.	11/372,185	MICROCHIP-YB FIBER HYBRID OPTICAL AMPLIFIER FOR MICRO-MACHINING AND MARKING	03/10/2006	Continuation of (6); Issued as U.S. Pat. No. 7,656,578
9.	11/339,679	FIBER LASER SYSTEM WITH INCREASED OPTICAL DAMAGE THRESHOLD	01/26/2006	Continuation of (7); Issued as U.S. Pat. No. 7,190,511
10.	11/643,760	MICROCHIP-YB FIBER HYBRID OPTICAL AMPLIFIER FOR MICRO-MACHINING AND MARKING	12/22/2006	Continuation of (9); Issued as U.S. Pat. No. 7,492,508
11.	12/166,027	MICROCHIP-YB FIBER HYBRID OPTICAL AMPLIFIER FOR MICRO-MACHINING AND MARKING	07/01/2008	Continuation of (10); Abandoned
12.	12/647,106	MICROCHIP-YB FIBER HYBRID OPTICAL AMPLIFIER FOR MICRO-MACHINING AND MARKING	12/24/2009	Continuation of (11); Issued as U.S. Pat. No. 7,995,270

Docket No. : IMRAA.015C1/IM-72C
Application No. : 09/785,944
Filing Date : February 16, 2001

Customer No.: 20,995

Appeal No. 2010-005849

Respectfully submitted,

Knobbe, Martens, Olson & Bear, LLP

/Steven P. Ruden/

Steven P. Ruden, Ph. D.

Registration No. 53,538

Attorney of Record

Customer No. 20,995

(949) 760-0404

Docket No. : IMRAA.015C1/IM-72C
Application No. : 09/785,944
Filing Date : February 16, 2001

Customer No.: 20,995

Appeal No. 2010-005849

X. RELATED PROCEEDINGS APPENDIX

Attached hereto are copies of the following documents:

(Exhibit A) Decision Denying Petition to Reconsider Order Denying Request for Ex Parte Reexamination of U.S. Patent No. 5,818,630, in Reexamination Control No. 90/010,650 filed August 19, 2009, dated July 30, 2010, in 8 pages.

(Exhibit B) Opinion and Order of District Judge Arthur J. Tarnow, dated December 27, 2010, in *IMRA America, Inc. v. IPG Photonics Corporation*, Case No. 06-15139, in 19 pages.

(Exhibit C) Opinion and Order Granting Plaintiff's Motion for Summary Judgment of No Invalidity for Derivation, Denying In Part and Granting In Part Defendant's Motion for Summary Judgment Regarding Damages Issues, Granting Plaintiff's Motion for Summary Judgment of No Inequitable Conduct, and Denying Defendant's Motion for Summary Judgment of No Infringement, Invalidity and No Willful Infringement, by District Judge Arthur J. Tarnow, dated March 14, 2011, in *IMRA America, Inc. v. IPG Photonics Corporation*, Case No. 06-15139, in 31 pages.

(Exhibit D) Stipulated Order for Dismissal, signed by District Judge Arthur J. Tarnow entered November 1, 2011, in 2 pages.

(Exhibit E) Stipulated Order Re Amended Final Judgment and Amended Final Judgment by District Judge Arthur J. Tarnow, dated November 21, 2011, in 4 pages.

Docket No. : IMRAA.015C1/IM-72C

Application No. : 09/785,944

Filing Date : February 16, 2001

Customer No.: 20,995

Appeal No. 2010-005849

EXHIBIT A



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/010,650	08/19/2009	5818630	16577-0003RX2	8198

7590 07/30/2010
SUGHRUE MION ZINN MACPEAK & SEAS
2100 PENNSYLVANIA AVENUE N.W.
WASHINGTON, DC 20037-3202

EXAMINER

ART UNIT PAPER NUMBER

DOCKETED

AUG - 3 2010

DATE MAILED: 07/30/2010

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patents and Trademark Office
P.O.Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS
FISH & RICHARDSON PC
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

Date: **MAILED**
JUL 30 2010

CENTRAL REEXAMINATION UNIT

EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. : 90010650
PATENT NO. : 5818630
ART UNIT : 3993

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified ex parte reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the ex parte reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Sughrue Mion Zinn MacPeak & Seas
2100 Pennsylvania Ave, NW
Suite 800
Washington, DC 20037-3213

(For Patent Owner)

MAILED

JUL 30 2010

CENTRAL REEXAMINATION UNIT

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110

(For Requester)

In re Fermann *et alia*
Reexamination Proceeding
Control No. 90/010,650
For: U.S. Patent No. 5,818,630

: DECISION DENYING
: PETITION UNDER
: 37 CFR 1.181 AND
: 37 CFR 1.515(c)

This is a decision on the December 14, 2009 paper entitled "PETITION UNDER 37 C.F.R. §§ 1.181 AND 1.515(c) TO RECONSIDER ORDER DENYING REQUEST FOR EX PARTE REEXAMINATION". No fee is required. The petition is before the Director of the Central Reexamination Unit for decision.

The petition is **DENIED** for the reasons set forth below.

REVIEW OF FACTS

1. U.S. Patent No. 5,818,630 (hereinafter, the '630 patent) issued on October 6, 1998 to Fermann *et alia*.
2. On March 21, 2008, a first request for *ex parte* reexamination was deposited by a third party requester and was assigned Control No. 90/008,971 (hereinafter, the '8971 proceeding). Reexamination was granted as to claims 1-3, 10-12, 24, 25, 27-29, 31, 36, 37, 39, 46-49. A notice of intent to grant a reexamination certificate was mailed on July 21, 2009 that confirmed the patentability of all claims including newly added claims 50-64.
3. On August 19, 2009, a second request for *ex parte* reexamination was deposited by a third party requester, and this reexamination proceeding was assigned Control No. 90/010,650 (hereinafter, the '10650 proceeding).

Art Unit: 3992

3. An order denying the request for *ex parte* reexamination was mailed on November 13, 2009. The order did not find that a Substantial New Question (SNQ) of Patentability was raised for any of the requested claims.
4. On December 14, 2009, the present petition was filed.

DECISION

Third party requester ("Petitioner") in the '10650 reexamination proceeding has petitioned seeking relief from the examiner's November 13, 2009 Order denying *ex parte* reexamination for all requested claims.

I. Standard of Review

37 CFR 1.515(c) and 1.181 provide for the filing of a petition to review an examiner's determination refusing to order *ex parte* reexamination. The CRU Director's review of the reexamination request on petition is *de novo*. Therefore, this review will determine whether the examiner's refusal to order reexamination for claims 1-3, 10-12, 24-25, 27-29, 31, 36-37, 39, and 46-49 was correct.

The following rules and procedures are applicable to this review:

35 U.S.C. § 303(c) provides:

A determination by the Director pursuant to subsection (a) of this section that no substantial new question of patentability has been raised will be final and nonappealable. Upon such a determination, the Director may refund a portion of the reexamination fee required under section 302 of this title.

37 CFR § 1.515(c) provides:

The requester may seek review by a petition to the Director under 37 CFR § 1.181 within one month of the mailing date of the examiner's determination refusing *ex parte* reexamination. Any such petition must comply with 37 CFR § 1.181(b). If no petition is timely filed or if the decision on petition affirms that no substantial new question of patentability has been raised, the determination shall be final and nonappealable."

MPEP § 2248 provides, in pertinent part:

If a petition seeking review of the examiner's determination refusing reexamination is filed, it is forwarded (together with the reexamination file) to the Office of the CRU

Art Unit: 3992

Director for decision. Where a petition is filed, the CRU Director will review the examiner's determination that a substantial new question of patentability has not been raised. The Director's review will be *de novo*.

For "a substantial new question of patentability" to be present, it is only necessary that: (A) the prior art patents and/or printed publications raise a substantial question of patentability regarding at least one claim, i.e., the teaching of the (prior art) patents and printed publications is such that a reasonable examiner would consider the teaching to be important in deciding whether or not the claim is patentable; and (B) the same question of patentability as to the claim has not been decided by the Office in a previous examination or pending reexamination of the patent or in a final holding of invalidity by the Federal Courts in a decision on the merits involving the claim. MPEP §2242.

II. Summary of the Prosecution and Reexamination History of the '630 Patent

The '630 patent issued on October 6, 1998 to Fermann *et alia*. During the prosecution of the '630 patent, the Examiner indicated that claim 1 was allowable because:

"...the prior art fails to anticipate or obviate an optical amplifier with a near diffraction limited input, a mode converter, a pump, and a multi-mode amplifier with an output in the fundamental mode." '630 Patent, Notice of Allowance mailed 4/4/2000, Pages 2-3.

A first reexamination of the '630 patent (the '8971 proceeding) resulted in a Notice of Intent to Issue Reexamination Certificate ("NIRC") on July 21, 2009 that confirmed claims 1-49 as patentability and allowed new claims 50-64. The NIRC stated that the arguments set forth by the Patent Owner on pages 16-20 and 25-26 of the remarks submitted June 1, 2009 were persuasive to overcome the rejections of claims 1, 10-12, 27-28, 31, and 46-49 in view of Yang and Tumminelli. Consequently, all claims under reexamination were confirmed or allowed.

III. De Novo Review of the Request for Reexamination

In accordance with the requirements of the reexamination statute and rules, a review of the record as it appeared before the Examiner at the time of the order has been undertaken prior to the preparation of this decision. A *de novo* determination, has been made as to whether the August 19, 2009 request for *ex parte* reexamination raises at least one substantial new question of patentability (hereinafter "SNQ"). This review will focus on the correctness of the ultimate decision to grant or deny reexamination and will not review specific findings in the order denying reexamination.

Art Unit: 3992

For the reasons set forth below, the request for *ex parte* reexamination of the '630 patent filed in the '10650 reexamination proceeding has been found not to present any SNQ. Therefore, the examiner's decision to deny reexamination is proper.

Petitioner argues that the Examiner erred in denying the request for reexamination because the Digonnet reference raises a SNQ over all requested claims. Further, Petitioner argues that the combination of Digonnet and Wyatt raises a SNQ.

First turning to Digonnet, the Digonnet reference was considered in the '8971 proceeding. Accordingly, Digonnet will not raise a SNQ if the Office has previously considered (in an earlier examination of the patent) the same question of patentability as to the patent and has decided that question in favor of the patent owner based on the same prior art patents or printed publications. *In re Recreative Technologies*, 83 F.3d 1394, 38 USPQ2d 1776 (Fed. Cir. 1996). MPEP 2242 notes that determinations on whether a previously considered reference raises a substantial new question of patentability shall be based upon a fact-specific inquiry done on a case-by-case basis. For example, a substantial new question of patentability may be based solely on old art where the old art is being presented/viewed in a new light, or in a different way, as compared with its use in the earlier examination(s), in view of a material new argument or interpretation presented in the request.

Turning to Digonnet, a SNQ is not raised for claims 1-3, 10-12, 24-25, 27-29, 31, 36-37, 39, and 46-49 because the request does not present Digonnet in a new light. First, Petitioner alleges that the request presents Digonnet in a new light in view of the Bucksbaum declaration and Wyatt. Petitioner asserts that the Examiner ignored the teachings of Bucksbaum against the requirement of MPEP 716.01(c)(III) that "the examiner must consider the nature of the matter sought to be established, the strength of any opposing evidence, the interest of the expert in the outcome of the case, and the presence or absence of factual support for the expert's opinion." It is noted that this portion of the MPEP is not germane to a determination of whether a patent or printed publication raises a SNQ. MPEP 2242, as presented above, sets forth the basis for a finding that an SNQ is raised by a patent or printed publication.

The request alleges that the Examiner misinterpreted Digonnet and attempts to present Digonnet in a new light by including the Bucksbaum declaration and the Wyatt reference to aid in its understanding.

Specifically, the request proposes that a SNQ is raised by the teachings of Digonnet located at pages 2, 125, and 128-129 and cites to the Bucksbaum declaration and Wyatt to aid in supporting the proposed SNQ. However, these cited portions of Digonnet were previously presented in the '8971 proceeding's request (*see '8971 proceeding, request pages 42-47*) and were found to not teach the distinguishing feature of a "multimode fiber amplifier providing an output thereof of an amplified beam substantially in the fundamental mode." *See '8971 proceeding, non-final rejection mailed 3/30/2009, Pages 5-7*. The present request is essentially returning to the same portions of Digonnet that were previously considered and found to not teach each and every element of the claims. However, in returning to the same passages, the request does not present

Art Unit: 3992

them in a new light, but instead presents the same interpretation as was presented in the first request.

For example, the present request cites to Digonnet pages 128-129 and asserts that Digonnet teaches:

[Digonnet] "goes on to explain that such fiber amplifiers can be a SM fiber amplifier or a MM fiber amplifier. A MM fiber amplifier would include (1) "interfacing optics" to match the single mode input to the fundamental mode of the MM fiber, and (2) preserving the signal energy in this fundamental mode as the signal passes through the fiber to its output." See *'10650 proceeding, Request for Reexamination, Pages 30-31.*

"the Digonnet thesis goes on to explain that launch in, and preservation of, the fundamental mode is "a relatively straightforward operation," and indicates that the active fiber waveguide should be manufactured to minimize scattering imperfections." See *'10650 proceeding, Request for Reexamination, Page 31.*

Similarly, the previous request cites to Digonnet pages 128-129 and asserts the same interpretation by stating:

"Thus, the Digonnet thesis discloses the desirability of a single-mode input and output for the fiber amplifier (to "interfac[e] ... with a single mode fiber"), and that an alternative approach to a single mode fiber amplifier is a multimode fiber amplifier. It then teaches how to obtain an output in the fundamental mode when using the multimode fiber amplifier: i) use a mode converter ("interfacing optics" such as "bulk optic components") to "match the fiber modes" and "excite the fiber fundamental mode at the input port;" and ii) "preserve the signal energy in this mode throughout the fiber to its output port" to obtain an output substantially in the fundamental mode. Such bulk optic components are just like the lenses disclosed in the '630 patent as being suitable for use as the mode converter." See *'8971 proceeding, Request for Reexamination, Pages 15-16.*

"the Digonnet thesis discloses that successful preservation of the fundamental mode in MM fiber is simply a matter of manufacturing the MM active fiber so as to minimize scattering imperfections." See *'8971 proceeding, Request for Reexamination, Page 17.*

The question of whether the cited portions of Digonnet render the '630 patent obvious or anticipated has previously been decided. Accordingly, Digonnet would not have been important to a reasonable examiner in determining the patentability of one or more claims in the '630 patent because the same question of patentability as to the patent and has already been decided in favor of the patent owner.

Turning next to Wyatt, Petitioner first cites MPEP 2131.01(I) and discusses the issue of enablement relating to the disputed limitations of Digonnet and the teachings of Wyatt. It is noted that this portion of the MPEP is not germane to a determination of whether a patent or

Art Unit: 3992

printed publication raises a SNQ. MPEP 2242, as presented above, sets forth the basis for a finding that an SNQ is raised by a patent or printed publication.

Petitioner further alleges that the combination of Digonnet and Wyatt raises a SNQ. As noted above, Digonnet does not independently raise a SNQ. The Wyatt reference similarly does not raise a SNQ because it is cumulative to the record. The request and the Bucksbaum declaration makes this clear when they state:

“Moreover, Wyatt explains that such fundamental mode propagation can be achieved simply by reducing fiber imperfections, just as is taught in each of the Digonnet thesis, Gambling 1, and the '630 patent.” *See '10650 proceeding, Request for Reexamination, Page 38.*

“Like Digonnet and the '630 patent, Wyatt also therefore recognizes that imperfections in the fiber lead to mode coupling, and that by eliminating such imperfections, a fundamental-mode signal can propagate long distances in a MM fiber without significant coupling to higher order modes.” *See Bucksbaum declaration, Page 33.*

Wyatt's teachings regarding the reducing of fiber imperfections has been previously presented in Digonnet and considered in the prior reexamination. Accordingly, Wyatt is cumulative to the record and would not have been important to a reasonable examiner in determining the patentability of one or more claims in the '630 patent because the same question of patentability as to the patent and has already been decided in favor of the patent owner.

Accordingly, the petition is **denied**.

SUMMARY AND CONCLUSION

1. The petition is **DENIED**. This decision is without prejudice to the right of the requester to file a new request for reexamination. The new request must set forth a substantial new question of patentability that is different from the substantial new question of patentability set forth in the prior examinations.
2. The decision is final and nonappealable. See 35 USC 303(c) and 37 CFR 1.515(c). No further communication on this matter will be acknowledged or considered.



Gregory Morse, Director
Central Reexamination Unit

Docket No. : IMRAA.015C1/IM-72C

Customer No.: 20,995

Application No. : 09/785,944

Appeal No. 2010-005849

Filing Date : February 16, 2001

EXHIBIT B

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

IMRA AMERICA, INC., a Michigan
corporation,

Plaintiff/Counterclaim Defendant,

v.

IPG PHOTONICS CORPORATION, a Delaware
corporation,

Defendant/Counterclaim Plaintiff.

Case No. 06-15139

DISTRICT JUDGE
ARTHUR J. TARNOW

MAGISTRATE JUDGE
MONA K. MAJZOUB

OPINION AND ORDER

The plaintiff in this patent case is a Michigan corporation (“Plaintiff” or “IMRA”) that is suing a Massachusetts-based corporation with international facilities (“Defendant” or “IPG”) for the alleged infringement of certain enumerated claims of United States Patent No. 5,818,630 (the “‘630 Patent”). The parties have reduced the number of disputed claims to four. The ‘630 Patent is titled “Single-Mode Amplifiers and Compressors Based on Multi-Mode Fibers.” The inventors are employees at Plaintiff’s Ann Arbor location. Plaintiff reports that the invention of the ‘630 Patent was a revolutionary breakthrough in the field of fiber lasers, and that “[v]irtually all of the significant companies in the fiber laser industry, except for [Defendant], have taken licenses under the ‘630 Patent” in order to use the technology. *See* Pl.’s Br. [81] at 4. Defendant makes and sells a variety of fiber lasers and amplifiers, most of which are accused of infringing the ‘630 Patent.

The ‘630 Patent is directed to a complex optical amplifier that produces a high-quality, amplified beam of light, such as those beams used in telecommunications or other industrial applications. Alternatively stated, the ‘630 invention “provides for a more precise and higher quality light beam from a fiber laser at high power.” *Id.* at 6. At the heart of this dispute is one

component of the amplifier, which the patent labels a “mode converter.” The “mode converter” is used to carefully “launch” a light beam into the input end of a “multi-mode” (“MM”) fiber in such a way that the beam is preserved in its “fundamental” (i.e. highest-energy) mode. When a light beam is in “fundamental” mode, none of its energy migrates to the other “modes” of travel supported by the fiber.

Plaintiff filed the Complaint in this action in 2006. In 2008, Defendant filed a request for examination of the ‘630 Patent, and the litigation was stayed. In mid-2009, the Patent Office confirmed the patentability of all of the claims contained in the ‘630 Patent. Defendant filed for a second examination proceeding, but the request was denied. Defendant’s subsequent request for reconsideration of the denial is now pending before the Director of Patents.

After receiving the parties’ claim construction briefs [80] and [81] and Responses [84] and [85], the Court held a hearing on June 2, 2010. After the hearing, Defendant filed a Supplemental Legal Memorandum [141], to which Plaintiff filed a Response [145]. The case is now before the Court to interpret the patent claim language as a matter of law.

I. STANDARD OF REVIEW

Adjudication of a patent infringement action entails a two-step analysis. “‘The first is a question of law, to be determined by the court, construing the letters-patent, and the description of the invention and specification of claim annexed to them. The second is a question of fact, to be submitted to a jury.’” *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 384 (1996) (internal citation omitted).

Patent “claims” are individually numbered sentences at the end of the patent that define the scope of protection provided by the patent and the extent to which the patentee is entitled to a right of exclusion. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). Disputes regarding the scope of a patent, as defined by the enumerated claims, are resolved through claim construction hearings to determine the meanings of disputed words or phrases. *See Markman*, 517 U.S. 370, 372 (1996). Because the Court’s claim construction will serve as the basis for future jury instructions and focus the liability questions for trial, it is important for

the Court to resolve any claim construction disputes raised by the parties. *See IPPV Enters., LLC v. Echostar Commc 'ns Corp.*, 106 F. Supp. 2d 595, 601 (D. Del. 2000). However, the Court need not construe every limitation present in a patent's assorted claims. Rather, it must interpret only those "that are in controversy, and only to the extent necessary to resolve the controversy." *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy."); *see also* Pl.'s Br. [81] at 1.¹

The focus of claim construction is on the words of the claim itself. The Court's starting point is, after reading the entire patent, to give each disputed term its plain and ordinary meaning as understood by persons of ordinary skill in the art. *See Phillips*, 415 F.3d at 1312-13. During claim construction, the Court should rely primarily on "intrinsic evidence," namely: the patent claims themselves, the specification,² and any prosecution history³ that is in evidence. *See Teleflex, Inc., v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1324-25 (Fed. Cir. 2002). To the extent that "extrinsic evidence"—such as dictionaries, treatises, or expert testimony—is not inconsistent with the intrinsic record, the Court may consult extrinsic evidence for clarification of the

¹ Here, within the single claim disputed in this action, the parties disagree as to how many terms require construction by the Court.

² The specification is a written description of the invention and may act as a dictionary for claim-construction purposes to define terms used in the claims. *Markman*, 517 U.S. at 373. It "is the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315. When a claim term is defined in the specification, that definition controls. *Abbott Lab. v. Novopharm Ltd.*, 323 F.3d 1324, 1330 (Fed. Cir. 2003).

³ The prosecution history is a record of the examination of the application before the United States Patent and Trademark Office. *SSIH Equip., S.A. v. United States Int'l Trade Comm.*, 718 F.2d 365, 376 (Fed. Cir. 1983). The prosecution history may "inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim construction narrower than it otherwise would be." *Phillips*, 415 F.3d at 1317.

underlying subject matter of the patent. *See Phillips*, 415 F.3d at 1317-18. In the discussion to follow, relevant expert testimony will be considered as extrinsic evidence in conjunction with related issues raised by the intrinsic record.

II. BACKGROUND

The ‘630 Patent contains forty-nine claims, only Claim 1 of which is an independent claim. All of the potentially disputed terms, emphasized below, appear in Claim 1, which reads:

An optical amplification system, comprising:

a laser source generating an input beam having a nearly diffraction limited mode;

a multi-mode fiber amplifier;

a mode converter receiving the input beam and converting the mode of the input beam to match a fundamental mode of the multi-mode fiber amplifier, and providing a mode-converted input beam to said multi-mode fiber amplifier; and

a pump source coupled to said multi-mode fiber amplifier, said pump optically pumping said multi-mode fiber amplifier, said multi-mode amplifier providing at an output thereof an amplified beam substantially in the fundamental mode.

Pl.’s Br. [80] at 9 (emphasis in original); *see* Def.’s Br. [81] at 6.

Both parties agree that the term “mode converter” must be construed by the Court. Additionally, Defendant proposes that the three other terms emphasized above also require construction.

A. “MODE CONVERTER”

The term “mode converter” is at the heart of this dispute. The parties offer the following proposed constructions for the term:

Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“An element capable of matching the mode of a multi-mode amplifier fiber.”	“An optical imaging system, such as a lens system, a section of tapered fiber, or a combination thereof, capable of matching the mode of the multi-mode fiber amplifier.”

Plaintiff makes several observations in explaining its proposed construction, beginning with the idea that the claim language itself does not require that any “particular structure” be

present in order to meet the definition of a “mode converter.” *See* Pl.’s Br. at 8. Plaintiff points to Figures 5, 6, 11 and 12 of the patent, each of which “portray[s] a ‘mode converter’ using a generic box, conveying that any structure may be used.” *Id.* at 9. “Neither the claim language nor the written description of the patent *excludes* any particular type of structure to accomplish the [mode-matching] action” named in the patent. *See id.* (emphasis added). Plaintiff concludes that, thus, a “mode converter” is anything—that is, any “element”—that accomplishes the “matching of the mode of the nearly diffraction limited input beam with the fundamental mode of the multi-mode fiber amplifier.” *Id.* at 9-10. Plaintiff argues that the intrinsic evidence provides a sufficient basis for the construction of the claim, but attaches the declaration of an expert, Dr. Wayne Knox, who attests that a person of ordinary skill in the art reading the ‘630 Patent at the time of its filing would interpret the claim to have the meaning set forth by Plaintiff. *Id.* at 10.

Defendant argues that Plaintiff’s proposed construction rewrites the definition for “mode converter” set forth in the ‘630 Patent, noting that nowhere in the patent is a “mode converter” described as an “element.” *See* Def.’s Br. at 14. Furthermore, Defendant argues that “a patent claim cannot encompass all structures for performing a recited function.” *Id.* (citing *Aristocrat Tech. Australia Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008)). Defendant suggests that Plaintiff’s proposed construction would subject the claim term “mode converter” to “the so-called ‘means-plus-function’ requirement set forth in 35 U.S.C. § 112, ¶ 6.” *Id.* Elaborating that patent rights cannot be granted on purely functional terms, Defendant proposes that Plaintiff’s construction “fails to recite sufficient structure for performing the recited function.” *Id.* at 15. If Plaintiff had originally conceived of a “mode converter,” as a purely functional “element,” Defendant argues that “the term would [be] construed [under § 112] to cover *only* the examples provided in the specification for performing the function of the claim, namely, a lens system, a section of tapered fiber, or a combination thereof.” *Id.*

Supplementing the argument grounded upon § 112, Defendant offers several other reasons in support of its own proposed construction. Defendant cites to the specification of the

‘630 Patent, one section of which reads: “The mode-converter 50 can consist of any type of *optical imaging system* capable of matching the mode of the MM amplifier 52.” *Id.* at 10 (citing ‘630 Patent, 10:26-28). Defendant characterizes the phrase added to its proposed construction – i.e., “such as a lens system, a section of tapered fiber, or a combination thereof” – as “a non-limiting list of all of the examples given in the specification.” In a separate section of argument, Defendant points to terms developed during the Patent Office’s reexamination of the ‘630 Patent to support its proposed construction now.⁴ *See id.* at 11-12. Defendant also seeks to draw terminology from another patent, the ‘511 patent, which was subsequently created by the inventors of the ‘630 Patent. *Id.* at 12-13.

In response, Plaintiff argues that Defendant attempts improperly to limit the scope of the term “mode converter” by reading a limitation from an example in the specification into Claim 1. *See Pl.’s Resp.* at 2. Alternatively stated, Plaintiff suggests that Defendant errs in drawing its proposed definition of a “mode converter” from a single isolated example in the specification. *Id.* at 7. Plaintiff notes that the part of the specification cited by Defendant–“the mode-converter 50 *can* consist of any type of *optical imaging system*”–uses the word “can,” not “is.” Furthermore, Plaintiff argues that the “tapered single-mode fiber” term, which Defendant seeks to integrate into the claim construction, is not an example of an “optical imaging system,” at all. *Id.* at 4. Plaintiff also provides the example of a “Bragg grating,” which would be understood as a “mode converter” by those of skill in the art, but which cannot be considered an “optical imaging system.” *Id.* at 6. The ‘630 Patent specification “specifically describes the use of a Bragg grating as a mode converter.” *See id.*

Finally, responding to Defendant’s § 112 argument, Plaintiff argues that the “means-plus-function” test simply does not apply. *See id.* at 9-10. Plaintiff reminds the Court that the word “element” is *not* actually written into the patent Claim. Rather, Plaintiff suggests that the parties actually agree that the existing term “mode converter” *is* structural, not functional, Plaintiff

⁴ However, it does not appear that a “mode converter” was ever explicitly defined as an “optical imaging system” during the Patent Office’s examination proceedings.

having listed several exemplary structural embodiments that can serve as mode converters. *Id.* Plaintiff further notes that generally, a patent limitation must actually use the word “means” in order for the “means-plus-function” test to be invoked. *Id.* at 10 (citation omitted).

Indeed, “a claim term that does not use ‘means’ will trigger the rebuttable presumption that 35 U.S.C. § 112, ¶ 6 does not apply.” *Depuy Spine, Inc. v. Medtronic Sofamore Danek, Inc.*, 469 F.3d 1005, 1023 (Fed. Cir. 2006). Here, the Court finds that Defendant has not rebutted the absence of the term “means” such that the statute should apply. As written, the claim includes *not* the word “element,” but the technical term “mode converter,” to which the Court must ascribe meaning. The means-plus-function test, perhaps invoked in an attempt “to narrow the scope of [the] patent to the particular technologies disclosed in the specification,” is inapplicable here as a threshold determination, and will not be discussed further. *See Patent Case Management Judicial Guide* § 5.2.3.5.

B. OTHER TERMS

Defendant seeks the Court’s construction of three other terms in Claim 1, while Plaintiff urges that the Court simply attribute “ordinary meaning” to each term. Defendant faults Plaintiff’s failure to offer alternative constructions for the terms at issue.⁵ *See* Def.’s Resp. at 15-16.

Defendant cites the record to support the following constructions:

Claim Language	Defendant’s Proposed Construction
<i>“converting the mode of the input beam to match a fundamental mode of the multi-mode fiber amplifier”</i>	<i>“converting the mode of the input beam to cause it to match a fundamental mode of the multi-mode fiber amplifier”</i>
<i>“mode-converted input beam”</i>	<i>“an input beam whose mode has been converted to match a fundamental mode of the multi-mode fiber amplifier”</i>

⁵ For claim construction purposes, the Court considers these terms “disputed,” even if it might be decided that no change should be made to the language as written.

<i>“an amplified beam substantially in the fundamental mode”</i>	“an amplified beam having substantially all of its energy content in the fundamental mode”
--	--

See Def.’s Br. at 16-20.

III. DISCUSSION

The objective of claim construction is “to instruct the jury on what the claim means from the perspective of a person having ordinary skill in the art,” and where that perspective would add nothing to the analysis, the Court is not required “to construe terms for the sake of construction.” *Patent Case Management Judicial Guide* § 5.2.3.1 (2009). While construction of technical terms is “clearly appropriate,” it is less likely to be required for “non-technical terms . . . terms of degree . . . [or where] ‘construing’ a claim term would involve simply substituting a synonym for the claim term.” *Id.*

Here, Defendant asks the Court to construe three non-technical terms, presumably in order to provide additional clarity to the disputed claim. See *Markman* Hr’g Tr. at 97 (“[I]t’s perfectly appropriate to use the claim construction process to make a claim term clear.”). Plaintiff argues that not only would construction of the non-technical terms not serve to clarify the claim, but that Defendant’s proposed constructions threaten to “inject” meaning that is not fairly inferred from the language of the patent. See *id.* at 38-39 (arguing, for example, that the patent contains no statement of a “causal relationship” in the beam conversion process).

“Construing [non-technical] claim terms with more precise language may be error, not only because it ‘imports limitations’ from the specification into the claims, but also because it can impinge on the role of the jury in resolving the question of infringement.” *Patent Case Management Judicial Guide* § 5.2.3.1.5.1; see also *Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 806 (Fed. Cir. 2007) (“[A] sound claim construction need not always purge every shred of ambiguity. The resolution of some line-drawing problems—especially easy ones . . . is properly left to the trier of fact.”). Although the Court should construe any claim term for which there is a legitimate dispute, it is advised to be “skeptical of construing lay terms for which neither party

can produce intrinsic evidence indicating a specialized meaning.” *Id.*

After careful evaluation of the ‘630 Patent, the Court determines that the meanings of the three non-technical terms identified by Defendant are not “specialized” so as to call for further construction by the Court. Rather, to construe those terms as a matter of law would serve no clarifying purpose, would verge on constituting an “exercise in redundancy” and would risk encroachment upon the function of the jury. *See id*; *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d at 1568. The Court declines to construe the non-technical terms Defendant has identified.

Thus, the Court will construe only the term “mode converter,” which the parties agree is at the heart of this dispute. In that construction, the Court will rely primarily on “intrinsic evidence,” namely: the language of the claim to be construed, the specification, the patent’s other claims, the prosecution history in evidence, and the cited prior art. *See Teleflex*, 299 F.3d at 1324-25. To the extent that “extrinsic evidence”—here, expert declarations and the ‘511 Patent—is not inconsistent with the intrinsic record, the Court may consider those sources for clarification of the patent’s underlying subject matter. *See Phillips*, 415 F.3d at 1317-18.

A. “MODE CONVERTER”

The term to be construed—“mode converter”—appears several times in the ‘630 Patent. Most importantly, it appears as an essential term in Claim 1, here to be construed. *See* ‘630 Patent, 13:16-20. Also in the “claims” section of the patent, the term appears in dependent Claims 17, 18, and 19, in which it is specified that the “mode converter” named in Claim 1 comprises⁶ “a bulk-optics imaging system,” “a tapered single-mode fiber,” or a combination thereof. *See* ‘630 Patent, 14:18-26.

Additionally, in the specification portion of the patent, which describes nine preferred embodiments of the invention, the term “mode converter” appears in the explication of the

⁶ The Federal Circuit has “consistently held that the word ‘comprising’ is an open transition phrase.” *See AFG Indus., Inc. v. Cardinal IG Go., Inc.*, 239 F.3d 1239, 1245 (Fed. Cir. 2001). “When a claim uses an ‘open’ transition phrase, its scope may cover devices that employ additional, unrecited elements.” *Id.* at 1244.

“second embodiment,” as follows:

The mode-converter 50 can consist of any type of optical imaging system capable of matching the mode of the MM amplifier 52. For example, a lens system may be employed. Alternatively, a section of tapered fiber may be employed, such that the output mode at the end of the tapered fiber is matched to the mode of the MM amplifier fiber 52. In this case, the mode-converter can be spliced directly to the MM fiber 52 producing a very compact set-up.

‘630 Patent, 10:26-33. This “second embodiment” is illustrated in FIG. 5 of the patent.

Although the language describing the third, eighth and ninth embodiments does not include the term “mode converter,” the corresponding illustrations in FIG. 6, FIG. 11, and FIG. 12, respectively, all include a graphic representation of a mode converter.

Finally, the patent’s treatment of the prior art includes a discussion of a demonstration of “unchirped fiber Bragg gratings” which had been “blazed to allow their use as mode-converters, i.e., to couple the fundamental mode to a higher-order mode.” *See* ‘630 Patent, 3:34-41.

In that context, Plaintiff proposes to define “mode converter” as “an element capable of matching the mode of a multi-mode amplifier fiber.” Defendant would define the term as “an optical imaging system, such as a lens system, a section of tapered fiber, or a combination thereof, capable of matching the mode of the multi-mode fiber amplifier.” Thus, the parties agree on the construction of the final phrase of the term: “capable of matching the mode of a multi-mode amplifier fiber.” The Court must decide whether construction of the term “mode converter” should include the word “element,” employ the phrase “optical imaging system, such as a lens system, a section of tapered fiber, or a combination thereof,” or use different language altogether.

Intrinsic Evidence: the Specification

Claims “must be read in view of the specification, of which they are a part.” *Phillips*, 415 F.3d at 1315 (quoting *Markman*, 52 F.3d at 979). The specification “can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format.” *Scimed Life Sys., Inc. v. Adv. Cardiovascular Sys.*, 242 F.3d 1337, 1344 (Fed. Cir. 2001). “The descriptive part of

the specification aids in ascertaining the scope and meaning of the claims inasmuch as the words of the claims must be based on the description. The specification is, thus, the primary basis for construing the claims.” *Phillips*, 415 F.3d at 1315 (quoting *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985)). A claim term “can be defined only in a way that comports with the instrument as a whole,” but it must also be construed in light of the general principle that “the claims made in the patent are the sole measure of the grant.” *Id.*, 415 F.3d at 1312, 1316 (internal citations omitted); *see also Kara Tech., Inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1347-48 (Fed. Cir. 2009) (“The claims, not specification embodiments, define the scope of patent protection. The patentee is entitled to the full scope of his claims,” and the Court “will not limit him to his preferred embodiment or import a limitation from the specification into the claims.”)

Here, Plaintiff proposes use of the word “element” in construing the disputed language because, Plaintiff argues, “no particular structure is required” by the specification’s usages of the term “mode converter.” *See* Pl.’s Br. at 8. Pointing to the specification portion of the ‘630 Patent, Plaintiff notes that Figures 5, 6, 11 and 12 all “portray a ‘mode converter’ using a generic box, conveying that any structure may be used,” and further, that no particular type of structure is excluded from the definition of “mode converter.” *Id.* at 9. Defendant objects to the use of “the generic term ‘element’” because that term appears nowhere in the ‘630 patent, and Defendant believes a construction employing the term “element” would impermissibly broaden the claims beyond the scope originally written into the ‘630 Patent. *See* Def.’s Br. at 14.

Defendant asserts that the patent specification explicitly defines “mode converter” as an “optical imaging system,” and that “that definition controls.” *See* Def.’s Br. at 10; *and cf. Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed. Cir. 2004) (“Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language.”). Defendant further notes that at the embodiment shown in FIG. 1 of the patent involves a “two-lens telescope [that] is an example of an optical imaging system.” *Id.* at 11. Plaintiff objects to Defendant’s characterization as a

“definition” of the specification sentence containing the phrase “optical imaging system,” arguing that “[a]ny express definition of a claim term must be *clearly set forth* in the written description.” See Pl.’s Resp. at 7 (Plaintiff’s emphasis); see also *Vitrionics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (“The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.”). Plaintiff argues that, in the absence of a clear definition, the Court should not import limitations from the specification into the claim, and that “although the specification often describes very specific embodiments of the invention, it is improper to confine the claims to those examples.” See Pl.’s Br. at 11 (quoting *Phillips*, 413 F.3d at 1323).

Plaintiff further protests Defendant’s proposed importation of the phrase “optical imaging system” from the patent specification into the proposed construction of the term “mode converter,” suggesting that to do so would be “inconsistent with the patent specification, which expressly calls out ‘an optical imaging system’ as *an example* of the recited mode converter.” See Pl.’s Br. at 8, 10. (emphasis by Plaintiff). That is, Plaintiff argues that “[t]he patent specification thus makes clear that a ‘mode converter’ *can be* an optical imaging system. But it does not state that a mode converter *must be* an optical imaging system.” *Id.* (emphasis added). Specifically, Plaintiff cites the patent’s second embodiment, which is illustrated by FIG 5 of the patent, and which provides that:

[t]he mode-converter can consist of any type of optical imaging system capable of matching the mode of the MM amplifier. For example, a lens system may be employed. Alternatively, a section of tapered fiber may be employed, such that the output mode at the end of the tapered fiber is matched to the mode of the MM amplifier fiber.

See Pl.’s Resp. at 6; ‘630 Patent at 10:26-32. By Plaintiff’s interpretation, the “lens system” in this passage is an “example” of an “optical imaging system,” but “a section of tapered fiber” is not; rather, Plaintiff argues that “a section of tapered fiber is *a separate exemplary embodiment* from a lens system a lens system as taught by [FIG 1].” See Pl.’s Resp. at 6 (emphasis by Plaintiff).

To some extent, the second embodiment is worded ambiguously enough to support either

Defendant's or Plaintiff's position. That is, as Defendant suggests, it could be conceptualized as follows: "the mode-converter can consist of an optical imaging system, of any type, and of which two examples are provided." Alternatively, as Plaintiff suggests, it could be conceptualized as follows: "the mode-converter *can* consist of any type of optical imaging system, and two examples are provided, or it need not consist of any type of optical imaging system at all."

As a matter of grammar, the Court favors Defendant's interpretation. The syntactic structure—"For example, [one thing] may be employed. Alternatively, [another thing] may be employed . . ."—strongly implies that both things listed are examples of the same preceding category. Here, that larger category is an "optical imaging system" that "can" operate as a mode converter.

However, the Court rejects Defendant's contention that the patent's second embodiment provides a decisive "definition" of the term "mode converter." The text of the second embodiment contains no terminology—such as the word "is" or, ideally, the phrase "defined as"—clear enough to compel the conclusion that Defendant suggests. Rather, in the second embodiment, a mode converter "can" consist of an optical imaging system. On one hand, this patent recites nine embodiments, and only the second embodiment addresses the "mode converter" claim term. However, the Federal Circuit has "expressly rejected the contention that [even] if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment," and similarly, the Court must hesitate to limit the meaning of "mode converter" to the text of the sole embodiment in which it is raised. *See Phillips*, 415 F.3d at 1323.

Here, against the strong background principle that, in order to accord the patentee "the full scope of his claims," the Court must not "limit [Plaintiff] to [its] preferred embodiment or import a limitation from the specification into the claims," the Court cannot find that the "mode converter" at issue in this patent *must* be an "optical imaging system" such that the latter term should be included in the claim construction. *See Kara Tech.* 582 F.3d at 1347-48. To do so would impermissibly narrow the scope of the claim.

The Court further recalls that, although the language describing the third, eighth and ninth embodiments does not include the term “mode converter,” the corresponding illustrations in FIG. 6, FIG. 11, and FIG. 12, respectively, all include a graphic representation of a mode converter. It is clear that the mode converter is conceived as a discrete component in the “optical amplification system” described in Claim 1. Although Defendant notes that the word “element” is nowhere to be found in the patent language, it is difficult to think of a more neutral term to be used in claim construction.

Despite the ambiguity of the second embodiment, and although the Court finds this a very close question, intrinsic evidence drawn from the specification weighs towards the adoption of Plaintiff’s proposed construction.

Intrinsic Evidence: Claim Differentiation

Under the doctrine of “claim differentiation,” “each claim in a patent is presumptively different in scope.” *RF Del., Inc. v. Pac. Keystone Techs., Inc.*, 326 F.3d 1255, 1263 (Fed. Cir. 2003); *see also Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1369 (Fed. Cir. 2007). For claim construction purposes, claim differentiation provides that “the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Phillips*, 415 F.3d at 1315; *see also Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006) (“an independent claim should not be construed as requiring a limitation added by a dependent claim”); *Dow Chem. Co. v. United States*, 226 F.3d 1334, 1341-42 (Fed. Cir. 2000) (concluding that an independent claim should be given broader scope than a dependent claim to avoid rendering the dependent claim redundant). “That presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and a dependent claim.” *Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 806 (Fed. Cir. 2007). However, “[c]laim differentiation is a guide, not a rigid rule.” *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991). Application of the doctrine “can not broaden claims beyond their correct scope.” *Curtiss-Wright*, 438 F.3d at 1380-81 (Fed. Cir. 2006).

Plaintiff points generally to Dependent Claim 17 (“wherein said mode converter comprises a bulk-optics imaging system”), Dependent Claim 18 (“wherein said mode converter comprises a tapered single-mode fiber”), Dependent Claim 19 (“wherein said mode converter comprises a combination of a bulk-optics imaging system and a tapered fiber”), and Dependent Claims 50 and 51⁷ to “demonstrate that the ‘mode converter’ limitation should be interpreted broadly.” *See* Pl.’s Br. at 11 & Ex. A. Furthermore, relying on the expert opinion⁸ of Dr. Knox, Plaintiff argues that the “tapered single-mode fiber” recited in Dependent Claims 18 and 19 “is not an optical imaging system, in the general sense of the term,” and that thus Dependent Claims 18 and 19 cannot be reconciled with Defendant’s proposed definition of “mode converter” as “an optical imaging system.” *See* Pl.’s Resp. at 4 & Ex. F ¶ 13.

Here, although claim differentiation is not dispositive, application of the doctrine weighs in Plaintiff’s favor. That is, the doctrine would suggest that the limitations applied to the term “mode converter” (using an open-ended “comprises”) in Dependent Claims 17, 18, and 19, should not be read to limit the scope of Independent Claim 1.

Intrinsic Evidence: Prosecution History

“The prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim construction narrower than it otherwise would be.” *Phillips*, 415 F.3d at 1317.

Here, as discussed immediately above, Plaintiff invokes Dependent Claims 50 and 51 to

⁷ “Claims 50 and 51 recite embodiments that include an optical fiber spliced to an input of the multimode fiber.” Pl.’s Br. at 11. The two claims were issued at Plaintiff’s request during the patent reexamination process. *See* Markman Hr’g Tr. at 33:35 - 34:13. Plaintiff argues that the added claims “talk about where the mode converter comprises an optical fiber spliced to the input of said multi-mode fiber . . . that splicing is not an optical imaging system under what has been described by Dr. Knox.” *Id.*

⁸ The dependent claims are intrinsic evidence for purposes of claim construction. However, expert *opinions* regarding the meaning of the dependent claims must be considered extrinsic evidence.

“demonstrate that the ‘mode converter’ limitation should be interpreted broadly.” *See* Pl.’s Br. at 11. “Claims 50 and 51 recite embodiments that include an optical fiber spliced to an input of the multimode fiber.” Pl.’s Br. at 11. The two claims do not appear in the ‘630 Patent that is now before the Court, but were issued at Plaintiff’s request during the patent re-examination process. *See* Markman Hr’g Tr. at 33:35 - 34:13. Plaintiff argues that the added dependent claims “talk about where the mode converter comprises an optical fiber spliced to the input of said multi-mode fiber . . . [and] that that splicing is not an “optical imaging system” under what has been described by Dr. Knox.” *Id.* Because the reexamination proceeding confirmed the patentability of the added claims, Plaintiff argues that those claims are entitled to a broad scope of interpretation. *See* Pl.’s Resp. at 7.

Defendant also points to the prosecution history to suggest that during reexamination of the ‘630 patent, Plaintiff’s expert confirmed that a “mode converter” necessarily involves an optical imaging system. *See* Def.’s Br. at 12 & Ex. 2 (relying on a declaration by expert by Philip Bucksbaum: “[t]o achieve the focusing depicted in this figure, the claimed mode converter must be an optical imaging system”). Plaintiff responds that Defendant’s citation was actually excerpted from Plaintiff’s effort during reexamination proceedings to “distinguis[h] a prior art reference, Yang, that disclosed the use of a lens at the input of a fiber amplifier. [Plaintiff] discussed the prior art’s use of a lens and explained why the reference did not disclose a ‘mode converter’ at all.” Pl.’s Resp. at 8.

Beyond the conflicting expert statements, the Court finds nothing conclusive in the prosecution history that would support the imposition of a narrowing construction on the term “mode converter” as it is to be construed in the ‘630 Patent that is now before the Court.

Intrinsic Evidence: Cited Prior Art

A patent’s citation to “prior art” can be significant for claim construction purposes insofar as it may show a patentee’s “emphasis on the importance of a particular feature [of the invention] in solving the problems of” earlier, related inventions. *See Patent Case Management Judicial Guide* § 5.2.3.2.3.2. Statements distinguishing the prior art must be sufficiently clear to

warrant a narrowing construction. *Ventana Med. Sys., Inc. v. Biogenex Labs., Inc.*, 473 F.3d 1173, 1180-81 (Fed. Cir. 2006).

Here, the ‘630 Patent cites as prior art an article “by Strasser et al . . . ‘Reflective-mode conversion with UV-induced phase gratings in two-mode fiber’ . . . which described using Bragg phase gratings as a mode converter.” Pl.’s Resp. at 2 (citing ‘630 Patent at 3:35-37). The ‘630 Patent describes the Strasser article as having demonstrated “unchirped fiber Bragg gratings” that “were blazed to allow their use as mode-converters, i.e. to couple the fundamental mode [of optical fibers] to a higher-order mode.” ‘630 Patent at 3:34, 39-41. Plaintiff’s expert, Dr. Knox, opines⁹ that the ‘630 Patent’s citation to the Strasser article’s description of Bragg gratings used as mode converters shows “that those skilled in the art were familiar with mode converters for other applications” at the time of the ‘630 Patent’s filing, and that “[m]any other types of mode converters for other applications were known to those skilled in the art at the time of the invention.” Pl.’s Resp. at Ex. F, ¶ 10.

“This is not a case in which the inventor's distinguishing the invention over the prior art in the specification results in a disavowal of coverage by the inventor of features in the prior art.” *Cf. Ventana Med. Sys.*, 473 F.3d at 1180-81. In other words, here, the inventors did not invoke Bragg gratings used as mode converters for the purpose of distinguishing the features of some new, improved mode converter of their own. Rather, it is in the opinion Plaintiff’s expert that the Court should infer from the reference to Bragg gratings that the meaning of “mode converter” is not limited to an “optical imaging system.” To the extent that it does not contradict intrinsic evidence already discussed above, the Court takes note of Dr. Knox’s opinion as extrinsic evidence.

Extrinsic Evidence: The ‘511 Patent

“Absent a formal relationship or incorporation during prosecution, the new-matter

⁹ The Court relies on prior art, such as the Strasser article, as intrinsic evidence for purposes of claim construction. However, as noted above, Dr. Knox’s *opinion* regarding the prior art cited in the ‘630 Patent must be considered extrinsic evidence.

content of [a latter-filed patent] is not available to construe the claims of [an earlier-filed] patent.” *Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1168 (Fed. Cir. 2004). Thus, a patent from a different patent family cannot be considered “intrinsic evidence” for purposes of claim construction. *See id.* at 1167-68.

Nevertheless, Defendants urge the Court to consider the inventors’ U.S. Patent No. 7,190,511 (“the ‘511 Patent”), which was filed about a year after the ‘630 Patent, as “further extrinsic evidence confirming that persons of skill in the relevant field, including the ‘630 inventors themselves, consider a ‘mode converter’ to be ‘an optical imaging system.’” *See* Def.’s Br. at 13 & n.3. Defendants argue that “[t]he inventors of the ‘630 patent have also confirmed and reiterated in [the ‘511 Patent] that a ‘mode converter’ employs an optical imaging system to match the mode of a multimode fiber amplifier.” *See* Def.’s Br. at 12-13. Specifically, the background language of the ‘511 Patent states: “[i]n [the ‘630 Patent], the loss of spatial beam quality in MM fiber amplifiers is prevented by excitation of the fundamental mode via the use of appropriate mode-matching bulk optics or fiber tapers.” *Id.* at Ex. 6 (‘511 Patent, 3:12-16). Defendant asks the Court to infer that the inventors, as persons skilled in the art, thus generally understood the term “mode converter” to mean “an optical imaging system.”

The ‘511 Patent contains neither the term “mode converter” nor the phrase “optical imaging system.” As extrinsic evidence, it provides an insufficient basis for the Court to adopt the definition Defendant proposes.

IV. CONCLUSION

The Court has reviewed the record, pleadings and hearing transcripts, and has considered in depth the parties’ arguments regarding claim construction. For the reasons discussed above,

The Court **DECLINES TO CONSTRUE** the three non-technical terms identified by Defendant.

Further, **IT IS ORDERED** that Plaintiff’s proposed construction of the term “mode

converter” shall be **ADOPTED**. Specifically, in the context of this litigation and for purposes of jury instruction, a “mode converter” shall be defined as “an element capable of matching the mode of a multi-mode amplifier fiber.”

SO ORDERED.

S/ARTHUR J. TARNOW

Arthur J. Tarnow

Senior United States District Judge

Dated: December 27, 2010

I hereby certify that a copy of the foregoing document was served upon counsel of record on December 27, 2010, by electronic and/or ordinary mail.

S/LISA M. WARE

Case Manager

Docket No. : IMRAA.015C1/IM-72C

Application No. : 09/785,944

Filing Date : February 16, 2001

Customer No.: 20,995

Appeal No. 2010-005849

EXHIBIT C

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

IMRA AMERICA, INC.,

Plaintiff,

v.

Case No. 06-15139

IPG PHOTONICS CORP.,

Honorable Arthur J. Tarnow
Senior United States District Judge

Defendant.

**OPINION AND ORDER GRANTING PLAINTIFF’S MOTION FOR
SUMMARY JUDGMENT OF NO INVALIDITY FOR DERIVATION [149],
DENYING IN PART AND GRANTING IN PART DEFENDANT’S MOTION
FOR SUMMARY JUDGMENT REGARDING DAMAGES ISSUES [155],
GRANTING PLAINTIFF’S MOTION FOR SUMMARY JUDGMENT OF
NO INEQUITABLE CONDUCT [162], and DENYING DEFENDANT’S
MOTION FOR SUMMARY JUDGMENT OF NO INFRINGEMENT,
INVALIDITY, AND NO WILLFUL INFRINGEMENT [198]**

INTRODUCTION

The plaintiff in this patent case is a Michigan corporation (“Plaintiff” or “IMRA”) that is suing a Massachusetts-based corporation with international facilities (“Defendant” or “IPG”) for the alleged infringement of certain enumerated claims of United States Patent No. 5,818,630 (the “‘630 Patent”). The Court issued an Opinion and Order [193] adopting Plaintiff’s proposed

construction of the term “mode converter.”

Before the Court are four summary judgment motions: 1) Plaintiff’s Motion for Summary Judgment of No Invalidity for Derivation [149]; 2) Defendant’s Motion for Summary Judgment Regarding Damages [155]; 3) Plaintiff’s Motion for Summary Judgment of No Inequitable Conduct [162]; and Defendant’s Motion for Summary Judgment of No Infringement, Invalidity, and No Willful Infringement [198]. A hearing on the pending motions was held on March 3, 2011.

For the reasons set forth below, the Court GRANTS Plaintiff’s Motion for Summary Judgment of No Invalidity for Derivation [149]; DENIES IN PART and GRANTS IN PART Defendant’s Motion for Summary Judgment Regarding Damages Issues [155]; GRANTS Plaintiff’s Motion for Summary Judgment of No Inequitable Conduct; and DENIES Defendant’s Motion for Summary Judgment of No Infringement, Invalidity, and No Willful Infringement.¹

STANDARD OF REVIEW

Summary judgment is appropriate on an issue or claim when “drawing all reasonable factual inferences in favor of the non-movant, the evidence is such that the non-movant can not prevail.” *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 547 (Fed. Cir. 1998); *see also London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1537 (Fed. Cir. 1991). To defeat a motion for summary judgment, there must be enough evidence to enable a reasonable jury to find for the non-moving party on

¹ The parties are familiar with the facts of the case so, except as necessary, the Court does not repeat them here.

that issue. *See Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 249 (1986).

“Summary judgment is as appropriate in a patent case as any other.” *Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd.*, 731 F.2d 831, 835 (Fed. Cir. 1984).

DISCUSSION

A. Plaintiff’s Motion for Summary Judgment of No Invalidity for Derivation [149]

Plaintiff brings this Motion [149] arguing that Defendant should be precluded from raising the defense that the ‘630 patent is invalid pursuant to 35 U.S.C. § 102(f) as having been derived from two independent sources. Defendant argues that the work of Drs. Yang and Gapontsev render the ‘630 patent invalid for derivation. For the reasons stated below, the Court finds that IPG’s claims of derivation cannot be proven as a matter of law.

1. Derivation Under 35 U.S.C. § 102(f)

“A patent is presumed to be valid.” *Monon Corp. v. Stoughton Trailers, Inc.*, 239 F.3d 1253, 1257 (Fed. Cir. 2001); *see also* 35 U.S.C. § 282 (2006). The presumption can be overcome at summary judgment if the party alleging invalidity can produce clear and convincing evidence of such invalidity “on an essential element of a defense upon which a reasonable jury could invalidate the patent.” *Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 962 (Fed. Cir. 2001).

Title 35 U.S.C. § 102(f) provides that “[a] person shall be entitled to a patent unless . . . he did not himself invent the subject matter sought to be patented.” 35 U.S.C. §102(f) (2006). To show derivation, the accused infringer must provide

clear and convincing evidence that “both prior conception of the invention by another and communication of that conception to the patentee.” *Eaton Corp. v. Rockwell Intern. Corp.*, 323 F.3d 1332, 1344 (Fed. Cir. 2003) (quoting *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1576 (Fed. Cir. 1997)). It is improper for a district court to include the obviousness analysis into the test for derivation.² *Gambro*, 110 F.3d at 1577.

“Conception is the ‘formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.’” *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986) (internal citation omitted). An inventor’s testimony regarding prior conception cannot, standing alone, be clear and convincing evidence of derivation; corroborating evidence is required. *Price v. Symsek*, 988 F.2d 1187, 1194 (Fed. Cir. 1993).

Section 102(f) does not pertain only to public information; it applies to private communications as well. *Oddzon Prods., Inc. v. Just Toys, Inc.*, 122 F.3d 1396, 1401-02 (Fed. Cir. 1997). “The communication must be sufficient to enable

²It should be noted that the parties disagree as to the applicable law. Defendant insists that a claim for derivation under § 102(f) can be based on obviousness, relying on the *Oddzon* case. See *Oddzon Prods., Inc. v. Just Toys, Inc.*, 122 F.3d 1396 (Fed. Cir. 1997). The Court disagrees and therefore will not address Defendant’s obviousness arguments.

In *Oddzon*, the court considered a different issue—whether under 35 U.S.C. § 103, a prior work that was already invalidating under 102(f) can be considered “prior art” for determining obviousness—than the one presently before this Court. See *Oddzon*, 122 F.3d at 1401 (finding that § 102(f) is a “prior art” provision for purposes of § 103).

one of ordinary skill in the art to make the patented invention.” *Gambro*, 110 F.3d at 1576. It is not enough to simply show that a communication rendered the claimed invention obvious to warrant invalidating a patent. *Id.* at 1578.

a. Dr. Gapontsev

Defendant argues that the “work” of Dr. Gapontsev is at issue with respect to IPG’s derivation defense. Defendant defines the “work” as the Gapontsev Paper³ and IPG products, such as the EAM-4000D device and the PYL-5000M device. *See* Dkt. [149], Ex. G, at 10. As to the devices, Defendant argues that Dr. Bucksbaum’s Expert Report concludes that “disclosures by Dr. Gapontsev would have enabled one of ordinary skill to make and use the claimed invention, in light of the relevant art.” Def.’s Resp. [181] at 11; *see also* Ex. A, at 75-135, 292-328. Dr. Bucksbaum’s report repeatedly discusses obviousness. There is no indication that the devices included every essential element included in the ‘630 patent. Even if Defendant’s devices qualify as a prior conception, there is insufficient evidence to meet the communication prong. Defendant argues sufficient communication is established by Dr. Fermann’s “role as a committee member for the June 1996 CLEO trade show” Def.’s Resp. [181] at 12. Defendant adds that Dr. Fermann’s active investigation of Dr. Gapontsev’s work supports its argument. *Id.* Defendant does not specify what type of investigation Dr. Fermann conducted or

³Dr. Gapontsev’s paper is entitled “25 kW peak power wide-tunable repetition rate and pulse duration of eye-safe MOPFA laser” in *Conference on Lasers and Electro-Optics*, Vol. 9, 1996 OSA Technical Digest Series (Optical Society of America, Washington D.C. 1996) (“the Gapontsev Paper”). Ex. G, at 10.

what he may or may not have discovered. These bare allegations do not show that Dr. Fermann gained information that would now render the '630 patent invalid under § 102(f). There is no indication that Dr. Fermann was privy to communication of an alleged prior conception. In fact, Dr. Gapontsev testified during deposition that IPG's work was treated as a "trade secret." *See* Ex. J., at 40-41.

Defendant cannot meet its burden to prove derivation as to the Gapontsev Paper either. The Gapontsev Paper was written in part by Dr. Valentin Gapontsev, CEO of IPG. The '630 patent was confirmed by the PTO in light of the Gapontsev Paper. Here, Defendant's argument fails under the prior conception prong. Therefore it is unnecessary to discuss the communication prong.

There is no set of facts under which Defendant can meet the prior conception prong. While Dr. Gapontsev has testified that the '630 patent was derived from his work, corroborating evidence of his claims is lacking. The Gapontsev Paper fails to discuss several elements of the claimed invention, namely the mode converter and amplified output beam that is substantially in the fundamental mode. Dr. Bucksbaum states that the Gapontsev paper "does not explicitly disclose an amplified output beam that is substantially in the fundamental mode under either party's proposed construction" as required by Element E of claim 1. Dkt. [152-5], Ex. K, at 293. He further states that "Gapontsev does not explicitly disclose a mode converter" *Id.* at 292. Without disclosing the essential elements, the Gapontsev paper cannot qualify as a "definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice," even when

considering Dr. Gapontsev's testimony. *See Hybritech*, 802 F.2d at 1376. If the Gapontsev Paper does not disclose the essential elements, it cannot serve as the basis for the communication of that idea. *See Gambro*, 110 F.3d at 1578. Furthermore, Plaintiff's arguments are supported by the PTO's confirmation of the '630 patent in view of the Gapontsev Paper.

b. The Yang Thesis

In 1996, Dr. Yang wrote the Yang Thesis⁴ while pursuing her Ph.D. at University of Michigan. Dr. Yang received funding from IMRA for her research and worked under Dr. Fermann, one of the named inventors of the '630 patent. The PTO confirmed the '630 patent in view of the Yang Thesis during the reexamination in 2009. Dkt. [149], Ex. C, at 3. The PTO found that the Yang Thesis "does not disclose that said multi-mode amplifier provides an output thereof an amplified beam substantially in the fundamental mode." Dkt. [149], Ex. O, at 4. Plaintiff argues that Defendant cannot prove that the '630 patent was derived from Dr. Yang. Pl.'s Br. [149] at 16. The Court agrees.

Dr. Yang testified that her own thesis work did not generate an amplified beam substantially in the fundamental mode. Ex. L, at 110; *see also id.* at 188-91. Conception must include every element of the claimed invention. *See Coleman v.*

⁴Dr. Yang's doctoral thesis is entitled "Generation and Amplification of Ultrashort Pulses in Erbium, Neodymium, and Thulium Fibers" ("the Yang Thesis"). Ex. G, at 10.

Dines, 754 F.2d 353, 359 (Fed. Cir. 1985). Here, the Yang Thesis does not disclose every feature of the claimed invention. The invention itself failed to produce the desired outcome. Defendant relies on an obviousness analysis, which is misplaced here. Furthermore, the PTO's findings during the reexamination further support Plaintiff's argument. Defendant, as a matter of law, cannot show that the '630 patent was derived from the Yang Thesis. Therefore, the Court finds it unnecessary to consider the communication prong of the derivation test. Plaintiff's Motion for Summary Judgment of No Invalidity for Derivation [149] is granted.

B. Defendant's Motion for Summary Judgment Regarding Damages Issues [155]

Defendant IPG brings this Motion [155] seeking summary judgment that: 1) Plaintiff's claim for pre-suit damages is barred by laches; and 2) Plaintiff failed to comply with the marking statute and therefore is not entitled to damages for the sales of accused products that occurred before Plaintiff notified Defendant of the alleged infringement.

1. Laches

The equitable defense of laches may be used in a patent infringement case. *A.C. Auckerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1028 (Fed. Cir.

1992) (*en banc*). Defendant must prove 1) that “the plaintiff delayed filing suit for an unreasonable and inexcusable length of time from the time the plaintiff knew or reasonably should have known of its claim against the defendant” and 2) that “the delay operated to the prejudice or injury of the defendant.” *Id.* at 1032. “A presumption of laches arises where a patentee delays bringing a suit for more than six years after the date the patentee knew or should have known” of infringement. *Id.* at 1028. A patentee can overcome the presumption by “introduc[ing] . . . evidence sufficient to raise a genuine dispute as to *either* delay or prejudice.” *Hemstreet v. Computer Entry Sys. Corp.*, 972 F.2d 1290, 1293 (Fed. Cir. 1992) (emphasis in original).

Defendant argues that Plaintiff should have known of the alleged infringement as early as August 23, 2000—the date when Dr. Harter, IMRA’s Vice President, sent a memo to IMRA’s President explaining that there might be a “problem” with the ‘630 patent. Def.’s Br. [155] at 12; *see also* Ex. 21. Defendant also argues that Plaintiff should have known about the alleged infringement when it had discussions with GSI Lumonics (“GSI”) employees about the same. *See* Ex. 23.

Plaintiff responds that since it was 1) assured that Defendant was not infringing the patent in 2000, 2) Defendant marketed its products as “single-

mode,” and 3) that Defendant had an extreme and notorious secrecy policy, that it has raised a genuine issue of material fact as to the reason for delay in filing suit. Plaintiff and Defendant were competing for GSI’s business in 2000. *See* Ex. 1, ¶ 8. GSI’s employee, Shepard Johnson, testified that he had conversations with Defendant and that Defendant was not infringing the ‘630 patent. Ex. 4, at 1. Johnson also testified that he believed Defendant was using single-mode fibers. Ex. 3, 64, 76-77. Plaintiff claims that GSI relayed that information to it. Ex. 1, ¶ 8.

Defendant’s Company Profile states that its employees operate on a “need-to-know basis” to maintain limited access. Ex. 5, at IMRA018986. Defendant also “pots” its products’ key components. Ex. 6, ¶ 4. The “pots” are called “fiber blocks.” They are filled with an opaque silicone encapsulant, which prevents others from analyzing the key components of the products. *Id.*

The Court need not decide whether Plaintiff knew or should have known of the infringement for more than six years prior to the filing of the suit. Even if the presumption of unreasonable delay were raised, Plaintiffs have presented sufficient evidence to raise a genuine issue of material fact as to unreasonable delay. Plaintiff’s reasons for not bringing the suit are supported by the evidence. Plaintiff was assured that the product was non-infringing by GSI. Plaintiff was under the

impression that Defendant's products were single-mode, not multi-mode.

Defendant's policy of secrecy is also supported. If Defendant's own employees did not know the key components of the products, then a competitor arguably could not be expected to discover the alleged infringement. Because there is a genuine issue of material fact as to whether the delay was unreasonable, it is unnecessary to discuss prejudice. Defendant's Motion [155] as to laches is denied.

2. Marking

Plaintiff seeks damages for Defendant's sales of allegedly infringing products from November 16, 2000. The lawsuit was filed six years later on November 16, 2006. Defendant argues that Plaintiff should be precluded from seeking damages prior to the filing of the suit. Defendant's arguments are categorized into three time periods: 1) November 16, 2000 to May 14, 2004; 2) May 14, 2004 to August 4, 2006; and 3) August 4, 2006 to November 16, 2006. For the reasons stated below, Defendant's Motion [155] is granted as to marking.

Marking Under 35 U.S.C. § 287

Anyone who makes, offers to sell, or sells any article covered by a patent may mark the article with the number of the patent. *See* 35 U.S.C. § 287(a) (2006). Failure to mark prevents the patentee from seeking damages for accused infringing

activity unless the patentee provides the accused infringer with actual notice of the alleged infringement. *Id.*

Actual notice “requires the affirmative communication of a specific charge of infringement by a specific accused product or device.” *Amsted Indus. Inc. v. Buckeye Steel Castings Co.*, 24 F.3d 178, 187 (Fed. Cir. 1994). Constructive notice is achieved when the patentee “‘consistently marked substantially all’ of the patented products, and was no longer distributing unmarked products.” *Id.* (quoting *Am. Med. Sys., Inc. v. Med. Eng’g Corp.*, 6 F.3d 1523, 1538 (Fed. Cir. 1993)). In order for the party to avail itself of the constructive notice provision of § 287, once the patentee has begun marking, the marking must be “substantially consistent and continuous” and the party must no longer distribute unmarked products. *Am. Med. Sys.*, 6 F.3d at 1538. The patentee must prove by a preponderance of the evidence that he complied with § 287. *Nike, Inc. v. Wal-Mart Stores, Inc.*, 138 F.3d 1437, 1446 (Fed. Cir. 1998).

November 16, 2000 - May 14, 2004

Plaintiff made, offered for sale, and/or sold devices covered by the ‘630 patent as early as 2000. Ex. 1 at 195-96; Ex. 2. Plaintiff’s expert stated that several products embodying the patent were sold to GSI in 2000. Ex. 5, at 10, ¶

26; *see also* Ex. 6, at 3. IMRA has stated that “[r]elevant products have been marked with labels bearing the ‘630 patent number since at least as early as May 14, 2004.” Ex. 7. Plaintiff provides no evidence that any of its products were marked prior to May 14, 2004. Plaintiff cannot establish that Defendant was under constructive notice between November 16 and May 14, 2004 because it cannot show that it “‘consistently marked substantially all’ of the patented products, and was no longer distributing unmarked products.” *See Amsted*, 24 F.3d at 187 (internal citation omitted).

In early 2000, competition between Plaintiff and Defendant for GSI’s business raised a suspicion of infringement. Plaintiff does not allege that it had conversations with Defendant about the potential infringement. GSI, however, did.

Actual notice “requires the affirmative communication of a specific charge of infringement by a specific accused product or device.” *Amsted*, 24 F.3d at 187. Notice must come from the patentee. *Id.* (internal citations and quotations omitted). Plaintiff has not met its burden of showing that there was an affirmative communication of a specific charge of infringement by a specific product to Defendant. The discussion between Defendant and the third party does not satisfy the actual notice requirement as the notice to Defendant did not come from the

patentee. There is no genuine issue of material fact as to actual or constructive notice to Defendant of the alleged infringement as to marking between November 16, 2000 and May 14, 2004.

May 14 2004 - August 4, 2006

Between May 14, 2004 and August 4, 2006, Plaintiff sold two families of devices covered by the '630 patent—the Femtolite line and the FCPA μ Jewel line. Ex. 1, at 195-96; Ex. 2. Defendant argues that Plaintiff failed to mark its Femtolite F-100 product and that Plaintiff should not be able to bring its claim for pre-suit damages during this time period. *Id.* at 6-8. To support its argument, Defendant provides examples of patent labels from September, 14, 2005 and December 2007 that do not bear the '630 mark. Ex. 9, at IMRA0339688; Ex. 11, at IMRA0547689.

Plaintiff does not argue that actual notice was provided to Defendant during this time period. Instead, Plaintiff argues that constructive notice was provided. As a matter of law, Plaintiff cannot prove constructive notice. Plaintiff would have to prove that it “consistently marked substantially all of its patented products, and was no longer distributing unmarked products.” *See Nike*, 138 F.3d at 1446. The failure to mark the Femtolite F-100 product prevents Plaintiff from seeking pre-suit damages from May 14, 2004 to August 4, 2006.

August 4, 2006 - November 16, 2006

On August 4, 2006 Plaintiff sent Defendant a letter identifying the ‘630 patent and four of Defendant’s products: YLR-1000-SM; YLR-1500-SM; YLP-0.5/80/20; and YLP-1/100/20. Ex. 20. Defendant argues that even if the letter constituted actual notice, Defendant would only be on notice for the four products listed in the letter. Defendant contends that Plaintiff is not entitled to any pre-suit damages for products other than the four listed above between the date of the letter and the filing of the law suit, November 16, 2006.

Plaintiff argues that the letter did affirmatively communicate a specific charge of infringement of the ‘630 patent by specific products, and that this communication is enough to satisfy § 287. *See Amsted*, 24 F.3d at 187. Plaintiff argues that once Defendant has received actual notice, it cannot claim ignorance of other infringing devices that use the same technology.

Constructive notice was not provided during this time period. Plaintiff’s failure to no longer issue unmarked products at least until 2007 prevents it from seeking pre-suit damages under the theory that Defendant was on constructive notice. Plaintiff also failed to provide actual notice of the alleged infringement of IPG products, other than the four named in its August 4, 2006 letter. While the letter does name the ‘630 patent and four of Defendant’s products for which a

license may be appropriate, the letter does not make an affirmative charge of infringement as required by *Amsted*. *Amsted*, 24 F.3d at 187. The letter could have simply been an invitation to enter a licensing agreement as to other products. It does not specifically charge infringement. Plaintiff, as a matter of law, has not shown that it met the stringent requirements of § 287 for IPG products other than the four named in the letter. Therefore, Defendant's Motion [155] is granted

C. Plaintiff's Motion for Summary Judgment of No Inequitable Conduct [162]

Plaintiff brings this Motion for Summary Judgment [162] asking the Court to preclude Defendant of arguing that the '630 patent is unenforceable due to inequitable conduct. Plaintiff argues that Defendant has not met its burden of showing that any of the omissions were material or intended to deceive.

Inequitable Conduct

An individual associated with the filing and prosecution of a patent application "has a duty of candor and good faith in dealing with the [PTO]." 37 C.F.R. § 1.56(a). An inequitable conduct charge arises from an allegation that an individual breached that duty. *See id.* To prevail, a defendant must show that the patentee 1) failed to disclose material information and 2) that it was the patentee's intent to deceive. *M. Eagles Tool Warehouse, Inc. v. Fisher Tooling Co., Inc.*, 439 F.3d 1335, 1339 (Fed. Cir. 2006).

Information is material to patentability when it is not cumulative and: 1) it establishes a prima facie case of unpatentability of a claim; or 2) it refutes, or is inconsistent with, a position the applicant takes in: i) opposing an argument of unpatentability, or ii) asserting an argument of patentability. 37 C.F.R. § 1.56(b). “Materiality may be established . . . by showing that a reasonable examiner would consider the withheld prior art important in deciding whether to issue the patent.” *Merck & Co., Inc. v. Danbury Pharmacal, Inc.*, 873 F.2d 1418, 1421 (Fed. Cir. 1989). Omitted information is generally considered less material than an affirmative misrepresentation. *Purdue Pharma LP v. Endo Pharm. Inc.*, 438 F.3d 1123, 1133 (Fed. Cir. 2006). A misrepresentation need only be within a reasonable examiner’s “realm of consideration.” *Merck & Co.*, 873 F.2d at 1421.

The intent requirement will be proven if the defendant can prove that the withholding at issue was motivated by a specific intent to deceive the PTO. *See M. Eagles*, 439 F.3d at 1340. Even gross negligence in the non-disclosure of material information does not meet the standard to prove deceptive intent. *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 876 (Fed. Cir. 1988). “Intent need not, and rarely can, be proven by direct evidence. Both elements—materiality and intent—must be proven by clear and convincing evidence. *M. Eagles*, 439 F.3d at 1340. As Plaintiff argues, it is important to note that the Federal Circuit has

“urge[d] caution” to district courts “in making an inequitable conduct determination at the summary judgment stage.” *Id.* (citing *Paragon Podiatry Lab.*, 984 F.3d at 1190).⁵

Defendant’s allegations of inequitable conduct are based on three categories of alleged conduct: 1) withholding references from the PTO during prosecution of the ‘630 patent; 2) misrepresenting prior art and data in the ‘630 patent specification; and 3) misrepresenting a reference during the reexamination of the ‘630 patent. They will be discussed below. The references at issue are 1) the

⁵Plaintiff adds that the Federal Circuit has expressed that it views the charge of inequitable conduct in every major patent case as “an absolute plague.” *Burlington Indus., Inc. v. Dayco Corp.*, 849 F.2d 1418, 1422 (Fed. Cir. 1988). In April 2010, the Federal Circuit has agreed to undertake the *en banc* review of the standard for inequitable conduct. *Therasense, Inc. v. Becton, Dickinson & Co.*, 374 F. App’x 35 (Fed. Cir. 2010). The Court has hinted that a finding of materiality will be amended to require a showing that one or more claims would not have issued and that the Court should refrain from deciding inequitable conduct until the *en banc* review is conducted. *See Avid Identification Sys., Inc. v. Crystal Import Corp.*, 614 F.3d 1330, 1331-32 (Fed. Cir. 2010) (Nelson, J., dissenting from a denial of a stay in a case involving inequitable conduct). The Courts finds Plaintiff’s notation of this issue to be relevant.

Desthieux Paper⁶; 2) the Yang Thesis; 3) the Minelly Abstract⁷; 4) the Keck Paper⁸; 5) the Gapontsev Paper; 6) the alleged misrepresentation of the Griebner Paper⁹, the Gambling Paper¹⁰, and the Poole Paper¹¹; and 7) misrepresentation of the contents of Table 1 of the '630 patent¹².

a.) The Yang Thesis

Dr. Fermann used to be Dr. Yang's mentor when she was a student and a

⁶B. Desthieux et al., "111kw (.5 mJ) Pulse Amplification at 1.5 μ m Using a Gated Cascade of Three Erbium-Doped Fiber Amplifiers", Journal of Applied Physics Letters, Vol. 63, Issue No. 5, p. 586 in 1993 ("the Desthieux Paper"). Ex. L, at 10-11; Ex. M at 43-44.

⁷J.D. Minelly et al., "Cladding-Pumped Fiber Laser/Amplifier System Generating 100 μ J Engery Picosecond Pulses", Conference on Lasers and Electro-Optics, Vol. 11 of 1997 OSA Technical Digest Series (Optical Society of America, Washington D.C., 1997), pg. 475 ("the Minelly Abstract"). Ex. L, at 12013; Ex. M, at 44-45.

⁸Donald B. Keck, "Spatial and Temporal Power Transfer Measurement on a Low-Loss Optical Waveguide," Applied Optics, Vol. 13, No. 8, p. 1882 (1974) ("the Keck Paper"). Ex. Q, at 14-15; Ex. S, at 72.

⁹U. Griebner et al., "Efficient Laser Operation with Nearly Diffraction-Limited Output from a Diode-Pumped Heavily Nd-Dosed Multimode Fiber", Optics Letters, vol. 21, No. 4, 266-68, Feb. 15, 1996 ("the Griebner Paper").

¹⁰W. Gambling et al., "Pulse Dispersion for Single-Mode Operation of Multimode Cladded Optical Fibers", Lett., Elect. Lett., vol. 10, 147-49, May 2, 1974 ("the Gambling Paper").

¹¹Poole, et al., "Fabrication of Low-Loss Optical Fibers Containing Rare-Earth Ions, Optics Letters, vol. 22, 737-38 (1985) ("the Poole Paper").

¹²Ex. Q, at 19; Ex. S, at 71.

consultant for Plaintiff corporation IMRA. Ex. 1, at 188-89, 214-15. Dr. Yang thanked Drs. Fermann and Harter in the “acknowledgments” section of her Thesis. Ex. 4, at iii. Dr. Fermann also admitted to sitting in on Dr. Yang’s defense of her thesis, but maintains that he was not sure if he read her thesis before sitting in on it. Ex. 1, 215-16.

The Yang Thesis was considered during the reexamination of the ‘630 patent. Ex. C at 3-5. The PTO confirmed the patent claims over the Yang Thesis. *Id.* Plaintiff cited the Yang Paper¹³ in the Background Section of the ‘630 patent. Ex. O col. 1, ll. 65-col. 2, l. 7. The PTO, during reexamination, found that the Yang Thesis did not disclose the mode converter. Ex. F, at 3; Ex. D, at 16-20.

Plaintiff asserts that the work described in the Yang Thesis is also the work that is discussed in the Yang Paper. Plaintiff believed the Yang Paper was cumulative to the Yang Thesis. Defendant argues that the Yang Paper should have been disclosed to the PTO. Defendant further argues that the close relationship between Dr. Fermann and Dr. Yang is evidence of Plaintiff’s intent to deceive.

The Court need not address the materiality of the Yang Thesis because there is no genuine issue of material fact as to Plaintiff’s intent to deceive by not

¹³Lih-Mei Yang et al., “Chirped-pulse amplification of ultrashort pulses with a multimode Tm:ZBLAN fiber upconversion amplifier”, *Optics Letters* 20(9): 1044-46 (1995) (“the Yang Paper”). Ex. O, col. 1, ll. 65-col. 2, l. 7.

disclosing the Yang Thesis. The relationship between Dr. Fermann and Dr. Yang does not evidence an intent to deceive. Dr. Fermann's testimony that the Yang Thesis was cumulative of the Yang Paper is consistent with the PTO's findings.

Defendant seems to suggest that the prosecuting attorney was duped by Plaintiff because he says he would have presented the Yang Thesis if he knew about it. Ex. 2, 50-51. However, during that prosecuting attorney's testimony, he goes on to say that he would only do so because it is his practice to present everything, not because he thought it was material or would have resulted in a different outcome. *See id.* There is no genuine issue of material fact as to an alleged intent to deceive by Plaintiff. The Court grants Plaintiff's Motion as to the Yang Thesis.

b.) The Desthieux Paper

Defendant alleges that Plaintiff was engaged in inequitable conduct by failing to disclose the Desthieux Paper. Drs. Fermann and Harter read the Desthieux Paper. They cited to it in another article they wrote about the amplification in multi-mode fibers. Ex. 9, Fermann Review Article, at 259.

Plaintiff argues that the reason the Desthieux Paper was not cited during the prosecution of the '630 patent was because Dr. Fermann believed that it was "further away from the state of the art" than the references he did cite. Ex. N, at

195-96. Defendant responds by arguing that the Desthieux Paper is highly relevant, exposing the mode converter, and that the fact that the ‘630 inventors had cited it in another paper but not in the patent prosecution is evidence of intent to deceive. Def.’s Resp. [186] at 13-15. Defendant’s expert, Dr. Bucksbaum, concludes that the telescope disclosed in the Desthieux Paper anticipates a limitation of the ‘630 patent. *Id.* at 14 (citing Ex. 11, Bucksbaum Report dated February 10, 2010, at 44-46). Defendant argues that the Desthieux Paper teaches a key feature of the ‘630 patent and that this failure to disclose “justifies a strong inference that the withholding was intentional.” *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1182 (Fed. Cir. 1995).

Plaintiff argues that the *Molins* case on which Defendant relies is inapplicable here. In *Molins*, the Court found evidence of deceptive intent where a reference that was withheld had been used in a patent prosecution in a foreign country. *Molins*, 48 F.3d at 1181. In that case, the patentee had stated that the reference was the closest prior art in the foreign country but had failed to use it in the United States. Here, that did not happen. Here, Plaintiff argues that it genuinely did not find the Desthieux Paper to be material. It argues that its citation to the Desthieux Paper in an unrelated article is not inconsistent with its position. The Court agrees. The Court need not address materiality because there is no

genuine issue of material fact as to the intent to deceive.

c.) Remaining References and Alleged Misrepresentations

With respect to the rest of the references and alleged misrepresentations at issue, Plaintiff argues that they were not presented because Dr. Fermann felt that they were cumulative and immaterial. Pl.'s Br. [162] at 14-16. Plaintiff adds that Defendant's have not shown any intent to deceive. *Id.* at 16-19.

Defendant responds that since the Plaintiff had cited to these articles in its academic work proves the materiality of the information. Def.'s Resp. [186] at 16-17. Defendants adds that the failure to then reference this material in the patent prosecution further supports the inference of some intent to deceive. *Id.* at 17. Plaintiff replies that there is no evidence that the inventors believed the reference was material to the invention. Pl.'s Reply [191] at 5. Dr. Fermann testified that the documents did not discuss to any output structure of the multi-mode fiber amplifier and that the references were cumulative. *Id.* at 5 (citing Ex. N, 191-93).

Defendant's assertions are bare and inadequate. Mere knowledge does not prove culpable intent. *Allen Organ Co. v. Kimball Intern., Inc.*, 839 F.2d 1556, 1568 (Fed. Cir. 1988). Plaintiff's motion is granted.

D. Defendant's Motion for Summary Judgment of No Infringement, Invalidity, and No Willful Infringement [198]

Plaintiff brings this Motion [198] arguing 1) that there is no infringement, 2)

the Court's construction of the disputed "mode converter" makes all the claims of the '630 patent impermissibly functional and therefore invalid for definiteness; and 3) Plaintiff has no basis for alleging willful infringement by Defendant.

The '630 Patent

The '630 patent is designed for an amplifier to amplify a laser light. A "multi-mode" ("MM") fiber is used instead of a "single-mode" ("SM") fiber. A non-amplifying fiber is called a "passive fiber. In a SM passive fiber, the fundamental mode of the laser beam has a certain size, called a "mode field diameter" ("MFD").

Defendant argues that the '630 patent is for a situation where the MFD of the MM fiber used for amplification is different than the MFD of the SM passive fiber carrying the laser beam. To match the MFDs, the '630 patent's mode converter is between the two fibers that 1) receives the laser beam from the SM passive fiber, 2) converts the mode of the laser beam to match the fundamental mode of the MM fiber amplifier, and 3) provides/launches the converted beam into the MM fiber amplifier.

Infringement

To prove infringement, the patentee must show that the accused product/device meets each claim limitation either literally or under the doctrine of

equivalents. *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 812 (Fed. Cir. 2002). To prove literal infringement the patentee must prove the accused device or method contains each element of the asserted claim. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997). Under the doctrine of equivalents the patentee must prove that the accused device contains an equivalent for each limitation not literally satisfied. *Catalina Mktg.*, 289 F.3d at 812 (internal citations omitted). A determination of infringement, whether literal or under the doctrine of equivalents, is a question of fact. *Id.* (citing *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998)). “Summary judgment of no literal infringement is proper when, construing the facts in a manner most favorable to the nonmovant, no reasonable jury could find that the accused system meets every limitation recited in the properly construed claims.” *Id.*

The Court finds that there is a genuine issue of material fact as to literal infringement, therefore it is unnecessary to discuss the doctrine of equivalents. This Court held in the Claim Construction that a “mode converter” is an “element” and is synonymous with a “discrete component.” Dkt. [193] at 14.

Defendant custom designs and manufactures its own fibers. Defendant claims that its fibers already “match” and that no converter is needed. Defendant

claims that it simply uses an off-the-shelf splicing machine, with no intervening mode converter. Defendant concludes that the only reasonable use of the '630 patent is for companies that use fibers having different MFDs, not for companies that design their own matching MFDs. Defendant claims that since its fibers are "pre-matched," the accused products do not meet the "match" or "converting to match" requirements of the '630 patent.

Plaintiff's position is that the "splice" is an "element" and that Defendant uses a splice. Plaintiff argues that the "standard" splicer that Defendant claims to use is actually more. Plaintiff argues that Defendant's documents show that there are special splicing programs that Defendant uses to determine the splice time and temperature and that the programs create an optimized splice that acts as a mode converter. Defendant depicts the optimized splice as a separate and distinct element in the design schematics of its products. Ex. A-5 ¶¶ 118(b)-(f). Plaintiff concludes that "[i]f a splice can be formed, tested, and removed if it fails to meet IPG's specifications, and shows up clearly on schematic depictions of the accused products, there is at least a fact issue" for the jury to decide if it uses an "element" within the meaning of "mode converter." Pl.'s Resp. [200] at 13.

Here, Defendant has not met its burden to show that summary judgment is proper. There are many factors in dispute and Plaintiff has provided enough

evidence to show that there is a genuine issue of material fact for the jury to decide. Defendant's own documents show that there is extensive importance in the splicing function. Plaintiff has provided specific citations to the Defendants own design schemes to show the emphasis that Defendant puts on the splicing process. Defendant claims that it is an "arrangement" and not an "element." The issue of whether the optimized splicing and arrangement is an element is one proper for the jury to determine. Both parties' arguments are supported by expert reports that are conflicting. Where there is conflicting expert testimony about how a device functions, summary judgment is inappropriate. *See Crown Packaging Tech., Inc. v. Rexam Beverage Can Co.*, 559 F.3d 1308, 1315 (Fed. Cir. 2009). Therefore, Defendant's Motion is denied as to infringement.

Indefiniteness

Purely functional claim terms are impermissible unless covered under 35 U.S.C. § 112, ¶ 6. Functional claims are rejected that "do not describe the invention but use 'conveniently functional language at the exact point of novelty.'" *Haliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 8 (1946), *superceded in part by statute*; *see also* 35 U.S.C. § 112, ¶ 6. Claims that are purely functional but do not seek shelter under the provisions of § 112, ¶ 6, are invalid for indefiniteness if they do not provide sufficient notice to the public of what is

within the scope of the patentee's right to exclude. *See United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 233 (1942). The leading resource used by patent examiners, the Manual of Patent Examining Procedure, states that "[a] functional limitation must be evaluated and considered just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." MPEP ¶ 2173.05(g).

As Plaintiff argues, Defendant has provided no analysis about whether a person skilled in the art would understand what a "mode converter" is in the context. Plaintiff, on the other hand, gives examples of many cases in which functional claims were upheld. *See In re Barr*, 444 F.2d 588, 594-95 (C.C.P.A. 1971) (finding that an element of a chemical compound claimed as "incapable of forming a dye with said oxidizing developing agent" was definite and proper); *see also Application of Venezia*, 530 F.2d 956, 957 (C.C.P.A. 1976) (finding that a mechanical apparatus claim that "members adapted to be positioned" and "portions . . . being resiliently dilatable whereby said housing may be slideably positioned" were definite and communicated the scope of the claim to one skilled in the art). Since Defendant has failed to meet its burden, Defendant's Motion [198] as to indefiniteness is denied.

Willful Infringement

To prove willful infringement, Plaintiff must at least show “objective recklessness.” *In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed. Cir. 2007) (*en banc*). A patentee must show by clear and convincing evidence that the infringer acted despite and objectively high likelihood that its actions constituted infringement of a valid patent. *Id.* at 1371. “The state of mind of the accused infringer is **not** relevant to this objective inquiry.” *Id.* (emphasis added).

Defendant argues that since it has legitimate defenses to present on infringement, the claim for willful infringement is unwarranted. Defendant concludes that it did not act in and “objectively reckless” manner. Def.’s Br. [198] at 19-20. Plaintiff responds that Dr. Gapontsev’s testimony that he used the ‘630 patent and that the PTO has issued many wrong patents in his field are evidence of his disregard for the patent system in this country. Pl.’s Resp. [200] at 19. This particular argument is irrelevant because it goes to the accused infringer’s state of mind.

Plaintiff argues that its internal memo written by Dr. Harter is proof of willful infringement. Dkt. [186], Ex. 7. The memo references a conversation that took place on August 23, 2000 where Dr. Gapontsev stated that Plaintiff “stole his idea.” *Id.* Plaintiff also cites an interrogatory where Defendant admits that in 2006

Dr. Gapontsev was notified by a GSI employee that there was a question as to infringement of the '630 patent. Ex. Z at 2. While these two statements could suggest willful infringement, they also support the Defendant's argument that he really thought he was not infringing. Plaintiff has shown that there is a genuine issue of material fact as to this issue. Defendant's Motion as to willful infringement is denied as well.

CONCLUSION

For the reasons discussed above, and the Court being fully advised in the premises,

IT IS ORDERED that Plaintiff's Motion for Summary Judgment of No Invalidity for Derivation [149] is GRANTED.

IT IS FURTHER ORDERED that Defendant's Motion for Summary Judgment Regarding Damages Issues [155] is DENIED as to the laches argument and GRANTED as to marking.

IT IS FURTHER ORDERED that Plaintiff's Motion for Summary Judgment of No Inequitable Conduct [162] is GRANTED.

IT IS FURTHER ORDERED that Defendant's Motion for Summary Judgment of No Infringement, Invalidity, and No Willful Infringement [198] is DENIED.

SO ORDERED.

S/ARTHUR J. TARNOW

Arthur J. Tarnow

Senior United States District Judge

Dated: March 14, 2011

I hereby certify that a copy of the foregoing document was served upon counsel of record on March 14, 2011, by electronic and/or ordinary mail.

S/LISA M. WARE

Case Manager

Docket No. : IMRAA.015C1/IM-72C

Customer No.: 20,995

Application No. : 09/785,944

Appeal No. 2010-005849

Filing Date : February 16, 2001

EXHIBIT D

**IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

IMRA AMERICA, INC.,
a Michigan Corporation,

Plaintiff/Counter-defendant,

v.

IPG PHOTONICS CORPORATION,
a Delaware corporation,

Defendant/Counter-claimant.

AND RELATED COUNTERCLAIMS

)
)
)
)
)
) C.A. No.: 2:06-cv-15139
)
) Judge: Hon. Arthur J. Tarnow
)
) Magistrate: Hon. Mona K. Majzoub
)
)
)
)
)
)

STIPULATED ORDER FOR DISMISSAL

IT IS HEREBY STIPULATED by and between Plaintiff IMRA America, Inc., (“IMRA”) and Defendant IPG Photonics Corp. (“IPG”) through their respective counsel of record, that the following claims and counterclaims are dismissed pursuant to Fed. R. Civ. P. 41(a)(1)(A)(ii):

- IPG’s request for declaratory relief regarding invalidity under 35 USC §§ 102, 103 and 116. (Dkt. 74, ¶¶ 45-48.)¹
- IPG’s request for declaratory relief that the ‘630 patent is unenforceable pursuant to the doctrines of patent misuse and laches. (Dkt. 74, ¶¶ 49-52.)
- IMRA’s claim that IPG has induced infringement of the ‘630 patent. (Dkt. 4, ¶ 11.)

¹ IPG maintains that the claims of the ‘630 patent are invalid for failure to satisfy the conditions for patentability specified in 35 USC § 112, and so this portion of IPG’s request for declaratory relief is not dismissed.

Dated: October 31, 2011

Respectfully Submitted,

By: /s/ Douglas R. Nemec

Edward V. Filardi
Douglas R. Nemec
Stacey L. Cohen
Mairead Schwab
SKADDEN, ARPS, SLATE,
MEAGHER & FLOM LLP
Four Times Square
New York, NY 10036
Telephone: (212) 735-3000
Facsimile: (212) 735-2000

ATTORNEYS FOR PLAINTIFF
IMRA AMERICA, INC.

By: /s/ Kurt L. Glitzenstein

Frank E. Scherkenbach
Kurt L. Glitzenstein
Jack P. Smith, III
Michael C. Lynn
FISH & RICHARDSON P.C.
One Marina Park Drive
Boston, MA 02210
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

Thomas W. Cranmer (P25252)
MILLER, CANFIELD, PADDOCK &
STONE, P.L.C.
840 W. Long Lake Rd., Suite 200
Troy, MI 48098-6358
Telephone: (248) 879-2000

ATTORNEYS FOR DEFENDANT
IPG PHOTONICS CORPORATION

SO ORDERED:

s/Arthur J. Tarnow
HONORABLE ARTHUR J. TARNOW
SENIOR UNITED STATES DISTRICT JUDGE

DATED: November 1, 2011

Docket No. : IMRAA.015C1/IM-72C

Customer No.: 20,995

Application No. : 09/785,944

Appeal No. 2010-005849

Filing Date : February 16, 2001

EXHIBIT E

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

IMRA AMERICA, INC.,
a Michigan corporation,

Plaintiff/Counter-defendant,

v.

IPG PHOTONICS CORPORATION,
a Delaware corporation,

Defendant/Counter-claimant.

AND RELATED COUNTERCLAIMS

C.A. No. 2:06-cv-15139 AJT-MKM

The Honorable Judge Arthur J. Tarnow

STIPULATED ORDER RE AMENDED FINAL JUDGMENT

IT IS HEREBY STIPULATED by and between Plaintiff IMRA America, Inc., (“IMRA”) and Defendant IPG Photonics Corp. (“IPG”) through their respective counsel of record, that the Judgment entered November 7, 2011, in the above-captioned case (Dkt. 299) be amended pursuant to Fed. R. Civ. P. 60. The form of the Amended Final Judgment is attached hereto as Exhibit A, and shall supersede the Judgment entered November 7, 2011 (Dkt. 299).

Respectfully Submitted:

Dated: November 18, 2011

By: /s/ Edward V. Filardi

Edward V. Filardi
Douglas R. Nemec
Stacey L. Cohen
Mairead Schwab
SKADDEN, ARPS, SLATE,
MEAGHER & FLOM LLP
Four Times Square
New York, New York 10036
Telephone: (212) 735-3000
Facsimile: (212) 735-2000

ATTORNEYS FOR PLAINTIFF
IMRA AMERICA, INC.

By: /s/ Kurt L. Glitzenstein

Frank E. Scherkenbach
Kurt L. Glitzenstein
Jack P. Smith, III
Michael C. Lynn
FISH & RICHARDSON P.C.
One Marina Park Drive
Boston, MA 02210
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

Thomas W. Cranmer (P25252)
MILLER, CANFIELD,
PADDOCK & STONE, P.L.C.
840 W. Long Lake Rd., Suite 200
Troy, MI 48098-6358
Telephone: (248) 879-2000

ATTORNEYS FOR DEFENDANT
IPG PHOTONICS CORPORATION

SO ORDERED:

s/Arthur J. Tarnow

Honorable Arthur J. Tarnow
Senior United States District Judge

Dated November 21, 2011

EXHIBIT A

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

IMRA AMERICA, INC.,
a Michigan corporation,

Plaintiff/Counter-defendant,

v.

IPG PHOTONICS CORPORATION,
a Delaware corporation,

Defendant/Counter-claimant.

AND RELATED COUNTERCLAIMS

C.A. No. 2:06-cv-15139 AJT-MKM

The Honorable Judge Arthur J. Tarnow

AMENDED FINAL JUDGMENT

This action was tried by a jury with Senior United States District Judge Arthur J. Tarnow presiding, and the jury has rendered a verdict.

IT IS ORDERED AND ADJUDGED that there was a jury verdict of no infringement (Dkt. 287) and, on that basis, the Court enters judgment against IMRA and in favor of IPG. Plaintiff shall recover nothing and this action shall be dismissed on the merits.

SO ORDERED:

s/Arthur J. Tarnow

Honorable Arthur J. Tarnow
Senior United States District Judge

Dated: November 21, 2011